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THE NEWSPAPER MAN'S POINT OF VIEW*

LEE A. WHITE
Detroit News, Detroit, Michigan

I NEVER hear a man addressed as "Doctor" without harking back to an incident of my university life and association with Ph.D.'s. One of those dreadful little creatures known to every campus as "faculty children" barely waited for the parting guest to close the door before she burst out with the inquiry: "Mamma, was he a *real* doctor or a talking doctor?"

The incident has for me a special significance since my colleagues, twitting me after such an occasional platform appearance as this, seem inwardly to be asking themselves whether I am a *real* or a *talking* newspaper man. I admit that I sometimes share the distress of the man who boarded the train at Pocatello, Idaho, with what, in pre-Volstead days, was known as a crying jag. Failing to elicit anyone's sympathetic attention he suddenly inquired, "Don't anyone in this car care what I'm crying about?" One passenger pretended that he did, and asked the answer. "Well," said the inebriate, "for 20 years I've been punchin' cattle up here in Idaho and Montana; and now whaddaye suppose I'm going to do? I'm going down to Arizona to be a damned sheepherder." I know, when I leave my desk to talk, just how he felt.

But in this instance, I am bolstered by a sense of the vitality and social significance of the work in which you are engaged, and of the serviceability of the profession which I hope I may be said to represent in the carrying on of your work. Doubting my capacity to furnish any valuable supplement to the remarks of Professor Burrows, or to instruct a group whose accomplishments in dignified publicity are so conspicuous in the press of the nation every day of every week, I venture only to present some few ideas not wholly my own, but for which I can hold no one else definitely responsible.

I suppose there is no conversational topic older than health; no item of news, whether transmitted by word of mouth, sign, symbol or printed word, of more certain interest than that pertaining to the physical well-being of individuals. Certainly the history of journalism is rich in incidents in support of this belief. From the days of the *Acta Diurna*, whose editor left his messages in chalk upon the walls of ancient Rome, journalism has been, among other things, a chronicler of bodily distresses, miraculous cures, ominous warnings, hopeful counsel; and thus it is like to continue. This is so because it is a fundament of journalism that those items, or as we entitle them "stories," are best which touch most closely the needs, desires, emotions, experiences,

* Read before the Health Education and Publicity Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 23, 1924.

aspirations of our public. That is why advertising, even though the motive in publication be selfish, is so rich in news value.

The first advertisement is said to have appeared in London in 1648. Perhaps so, journalistically speaking. What was advertised I do not know. But I am sure you will be interested in an announcement that appeared in the *Edinburgh Courant*, February 18, 1705—a newspaper, by the way, of which the author of Robinson Crusoe became editor:

"That the Famous Loozenges for Curing the Cold, stopping and pains in the Breast, the Kinkpost; Are to be sold by George Anderson at the foot of the Fish Mercal, and at George Mowbray's Shop, opposit to the Main Gaard. Price 8 sh. the box."

This was one of three advertisements in the *Courant;* and you may be sure that it is because such information comes close home to the readers that for more than two centuries vendors of medicaments have eagerly sought entrance to newspaper columns. I am sure that even did we not know the date of that ad's appearance, we could guess that the author knew the value of timeliness; that he brought forth his nostrum for colds and kinkpost (*i.e.*, whooping cough), not in pleasant June but in a season of epidemic snuffling and wheezing.

May I, from this very simple and historic instance, draw a few other equally simple though not historic observations?

Allowing for the obsolescence of the word kinkpost (even a word is entitled to die peacefully in the course of two hundred years, is it not?) I should like to call your attention to the directness and simplicity of the utterance. Grant that "cold" is a loose and indefinite term; that it might be more explicit to speak of it as a catarrhal condition of the respiratory passages, and more classic, more let us say Greco-scientific, to use a word like coryza; nevertheless, the advertiser was right. He was living up to the modern newspaper adage, "Tell it to Sweeney; the Stuyvesants will understand." He was, as the stage folk say, getting across. And he was "covering," as we would say, "his story." In forty words he was telling a multitude that he knew just what ailed them; how they felt; what would cure them (we hope); where to get it; how much it would cost. We could indict him only for failing to suggest the indicated prophylaxis. But doubtless he considered that none of his business; which view the most altruistic of us can understand.

I should for a moment like to linger over my earlier point. I was not able to include in the *Health Extra* which you have in hand an article whose headline promised a discussion of poliomyelitis. I grant that "infantile paralysis" is a misnomer; that its use is somewhat of a misfortune; but I am disposed to insist that in time of epidemic, when the resources of science and the press are being brought to bear upon public ignorance and carelessness, it is wise to speak the language of the people; reserving attempts to alter vocabularies for the piping times of health. It is very well to report upon poliomyelitis to the *Journal of the American Medical Association*, just as it is (with mental reservations on my part) very well to write a prescription for a saturate solution of sodium chloride for a nasal douche, if the patient can afford the price. But the public health officer has an obvious duty, and it lies in the line of clarity of utterance and not of scientifically impeccable nomenclature. You, as we, are bent upon conveying ideas. I think we should often remind ourselves that the difference between the highbrow and the lowbrow is largely one of vocabulary; that we are capable of relatively few ideas which cannot be conveyed to the average man if we are willing to swallow our pride in words.

The newspaper editor can share with the barber a certain pride in the development of the medical profession. It was never the privilege of the editor to use the lancet on anything but the conscience

of the individual, but he did in this country once deal commonly in medicines. Not yarbs and simples, mind you, but bottled and boxed and labeled medicaments. Says James Melvin Lee, historian of journalism:

"Even the most successful of the colonial printer-editors had to supplement the income from their presses by work in other fields. . . . To read the list of things which might be obtained at the print-shop gives one the impression that the colonial editor practically ran a store. . . . He seemed to make a specialty of selling quack medicines: he early discovered the value of his own newspaper as an advertising medium for such nostrums. The colonial editors of New York practically acted as wholesale distributors and encouraged their brother editors in other colonies to put pills and powders alongside of the Bibles and printed sermons on the shelves of the print-shop. Some of these nostrums 'cured diseases not to be mentioned in the newspaper'; for full details sufferers might call at the office of the colonial papers and editors would answer any questions asked. In the North, most of these so-called remedies were imported from Europe and frequently bore the endorsement of royal persons; in the South, most of the proprietary medicines offered for sale by local printers were manufactured from herbs after prescriptions furnished by Indian doctors. Typical of the latter the *South Carolina Gazette* advertised in January, 1774:

"'The Seneka-Rattle-Snake-Root, so famous for its effectually curing of Pleurisy; and an excellent Eye-Water, to be sold by the Printer.'"

I think, however, that you must be aware of the radical change in the policy of newspapers with respect not merely to nostrums but to health education and publicity in general. Happily the revolution in the character of advertising in newspapers was bred within the press itself, though the situation was once such as to warrant severe external pressure. Quite as happily, the advanced service of the press in the matter of health education, for all of its obvious shortcomings, is the result of the demand of the journalist for what he knows to be of interest to his readers, rather than the demand of the medical profession for space in which to acquaint the public with today's scientific probabilities or certainties.

I know that it is quite unnecessary to suggest to you either the journalistic merit or the social and scientific value of such matter as appears nation-wide in the lay press under the signatures of Drs. Brady, Evans, Hirschberg, Hutchinson and others of comparable standing. I wonder if even your profession realizes the multi-millions of dollars which the newspapers and magazines of this country have lopped from their advertising revenues, and the very considerable sums they have expended upon worthy editorial matter touching public health.

It is no part of my purpose to discuss the ethics of the medical profession; we of the profession of journalism have troubles enough defining and living up to our own. But I think you will grant that among the obstacles to our best service to society, and perhaps to the profession (I do not know as to that), has been the prohibition upon the advertising of the individual physician and surgeon and his consequent sedulous avoidance of the interview and the published statement. Dr. Copeland has said what we may not say, and with what truth you must judge:

"The medical profession through the ages has chosen to make itself a secret thing. The doctor has been looked on as a sort of miracle man. He has hidden his wisdom behind a veil of silence. An air of mystery has surrounded the profession as we have developed a code of ethics. This, I believe, is the most antiquated, moss covered and germ laden institution in the world."

Whether these words are justified or not, it is unquestionably true that the newspaper man, in what we believe to be a wholly laudable determination to get for the public that information which it de-

sires and which we believe it needs, has been forced to seek news where he could find it. That means that he has often been ill-advised in his sources of information; that he has been the unwilling victim of men of your profession not too scrupulous in their methods nor too scientific in either knowledge or practice; that pseudo-scientific healers whose soundness he was ill-fitted to judge have gained a hearing out of proportion to their merits. In general it means that both the press and the public have suffered a train of abuses from which your profession is best able, by means to be determined by you, to relieve them. Thus far the public health worker, with the freedom granted him as a result of his withdrawal from private practice, has been of the greatest aid to the press in correcting this unfortunate situation.

Of one thing we may be very certain. A great portion of the public declines to have either your profession or mine determine the subjects in which it shall be interested, or of which it shall have real or spurious knowledge. We have one instance demonstrating that neither the Hippocratic oath nor the laws of church or state can check the spread of information. I refer to Katharine Bement Davis' questionnaire which revealed that somehow 74 per cent of the women who answered her inquiries were practicing birth control.

I wonder if you are, as men writing for or speaking to the press, aware of some of the limitations under which we place ourselves under the blanket headings of "style" and "policy." If not, I commend you to a very special study of these limitations, in which your young friend who "covers" the "health beat" can assist you. There is, quite generally recognized throughout the nation, a young lady fourteen years of age. She is a very great myth, and a very great reality. She is the adolescent child whom everyone aspires to keep sweet, clean and wholesome of mind and body. And she is an omnivorous reader; so much so that even when we report the doings of the ringside, or the state of the corn crop, or the findings of the coroner's jury, and when we scan the full-page ad or the copy for the liner, we think of her. We pick our words and we skirt ideas and incidents with her ever in mind. We do not want her to touch pitch, lest she be defiled.

You may think some of the distinctions that are drawn are absurd; some of the contradictions in practice laughable; some of the arguments that bring us to our conclusions specious; some of the prices we pay for our (shall I say?) prudishness too dear. I am not to argue these points. But our state of mind and our habit you must cope with.

Among the articles Miss Delavan gathered from health departments for this "clinic" was a page of advertising from the Wheeling, W. Va., *Register* on "The Danger of 'Secrecy' in the Treatment of So-Called 'Secret' or Twin Social Diseases," published at the request of the Board of Health. You perhaps know that the great majority of newspapers in this country would not print that ad under any circumstances, even I think if the words "syphilis" and "gonorrhea" were eliminated, and despite the accompanying endorsement of ministers, women voters and improvement associations; and even, I think, though the editor, the publisher, and the whole staff agreed privately. The social taboo is responsible. If this strikes you as tragically unfortunate, you may find comfort in a laugh at the fact that a great newspaper rigidly excludes the word "bowels" from text and advertising, but permits the word "kidneys"; that in Philadelphia recently one had to buy two newspapers to find out just what the mayor said, one eliminating the word "guts" and the other eliminating some mild vulgarity like damn—I have forgotten what it was.

May I suggest in this connection that there is an opportunity for you to do a tremendous service in the educating of the coming generation to a better understanding of health measures, if you will

Published for the American Public Health Association Clinic on Publicity.

The Detroit News HEALTH EXTRA

THURSDAY, OCTOBER 21, 1920—FORTY FOUR PAGES.

MILK RULES EXPLAINED BY BULMER

A Contribution to the Cause of Health Education and Publicity

THIS "Health Extra" has been published by The Detroit News in the support of Dr. D. E. Edmondson, Chairman of the Section on Health Education and Publicity of the American Public Health Association. The material was gathered from various newspapers and health departments of American cities and cities by Miss Marjorie Dobson, director of the Bureau of Education of the Michigan Department of Health, with a view to its convenience to discussions on the value of publicity.

Incinerator or Dike Will Solve Odors, Horwitz Says

MILK ONLY FUEL, FIVE-CAR TRAIN HAULED 6 MILES

SCIENTISTS FINISH STUDYING AMAZON DRUG OF COURAGE

CHILD HEALTH CENTERS IN FAMILY UNIT

Parents Must Shoulder the Bulk of the Responsibility.

FARMER USES 3 TIMES AS MUCH MILK AS CITYBANITE

"Let Us Flee," Said the Fly So They Flew Up the Flue

Health Guardians Turn Guns Upon Nuisances

Dr. Peters Tells of Perils That Lie In Waste Material; Flies and Vermin Seen as Menace to Public; Shop Hazards Are Checked

DIPHTHERIA IS A CHILD MENACE

Immunization Is Prime Effort of Health Department at This Time.

A WARNING IS ISSUED

INFANTILE PARALYSIS ADVICE GIVEN IN MEDICAL BULLETIN

EDITORIALS

There Are Certain Things Not Democratic and One Is Health Safeguards.

City's Health Comes First.

HEALTH DIRECTOR ASKS PUBLIC'S HELP

MAD DOG AT LARGE

BEWITT TELLS HOW TO PREVENT RABIES

The Section on Health Education and Publicity had a newspaper of its own at the Detroit Meeting. The *Detroit News* published this Health Extra made up of clippings from the newspapers of many cities. The sheet, which was full newspaper size, was used in the clinic on newspaper publicity and formed the basis for much valuable discussion by Mr. White and others.

bear in mind when giving out news the eager curiosity, the receptivity of the child-mind. I have children, aged seven and eleven, who eagerly read the newspapers within their various capacities, and it is amazing, as you will know, to discover how early they cope with and grasp some pretty large ideas. If one will bear in mind not merely the adult, but the ten year old child when he is talking through the press, he will have done a very great deal to produce a more intelligent and discriminating generation.

May we turn for just a few moments to the *Health Extra*, and become more clinical?

From a standpoint strictly of popular appeal, I consider the story (col. 2) of the engine running on milk infinitely the best story on the page, though by no means the most vital. It is indifferently written; but no writing could destroy the reader-interest of this novel lesson on milk. This stunt of Dr. Bundesen was reported country-wide. It was probably carried on the wire by every press association. It was made the subject of feature articles, editorials, of quips and what we call "paragraphs"; and one humorist spent a whole "colyum" on it. I do not doubt that poems were written on it. In 14 days the Chicago Department of Health had received 155 clippings, showing its publication from coast to coast. This number has probably been increased enormously; and I expect to see the story crop out here and there for months if not years to come.

That was a triumph in publicity, for it not only won readers for the sugar-coated lesson on the food value of milk, but it undoubtedly earned more patient auditors when Dr. Bundesen talked over the radio, and more willing readers of the pamphlet on milk. As to the ultimate service, I leave it to you to judge.

I would like to digress here a moment to mention an example of tremendously interesting news stories which give an opportunity to the medical profession to offer wise counsel in time of need; and such opportunities occur with great frequency. Only a little time ago in Saginaw the stomach of a child—a mentally defective child—was emptied, and over twelve hundred objects, chiefly metal, but ranging from street car transfers and metal tags, pins and what-nots, to shoe laces, were found. We published a photograph of the contents of her stomach, and a detailed list of them. I do not think there was a human being who could read and bought the paper who failed to read every word of it and comment on it. Now, that is in itself a mildly sensational thing of no significance; but there was hanging to that story, written by our special correspondent whom we sent to Saginaw to cover it, a very discerning, scientific and worth-while statement regarding the state of mind of this child (whose name, by the way, was always concealed), and regarding the characteristics of children who swallow foreign substances, the deficiencies of those who eat chalk, dirt, etc. Doubtless a considerable amount was added to the knowledge of school teachers and parents with regard to abnormal children.

In column 8 are two stories on a mad dog from a paper published in my home village 18 miles from here. The first is a typical product of an inexperienced reporter in the absence of the editor and of an hysterical chief of police. I shall not go into the inaccuracies of the scare story. It is enough to say that it only succeeded in throwing the village into a panic, the worse because of their complete ignorance of rabies. The story immediately below it, you will notice, contains information which should have been published with such truth as was in the first story a week before; information which would never have been printed had the public not requested the editor to get it from the health officer and publish it to relieve the tension.

I am sorry that we did not have room to print some excellent statistical matter presented by one board of health to its common council. It was a monthly report

which would occupy close to two columns, and which the papers of the city print each month. I should like to interview ten citizens of that town to discover whether anyone reads these reports. The weaknesses are length and dullness of even the best straight statistical report to the general public. That report could have been taken in hand by a keen editor and whipped into a meaty and interesting summary to the advantage of the public, the newspaper, and I think the department of health. Footage of clippings in the scrapbook may please one's vanity, but only the absorption of the information by the public at large serves the high purposes of health publicity.

Of several examples of excellent matter on infantile paralysis, one is printed from the Indianapolis *News* (cols 4–5). It seemed to me the best, though wholly lacking in that great essential, a "news peg on which to hang it," as we say. There was, or there was not, infantile paralysis in the city at the time, and if there was it was a normal or an abnormal situation. The facts might well have been given. I do not suspect concealment, or fear of a panicky condition of the public mind if the truth were told; but we have had ample evidences of what type of stories travel by mouth when the suspicions and fears of the public are aroused along with the belief that the truth is being suppressed.

I wish I had time to go into the details of the typhoid epidemic in St. Paul and Minneapolis; of the agitated condition of the minds of the people during the recent smallpox epidemic in Detroit and other cities, and the infantile paralysis and influenza epidemics. It would furnish remarkable examples of the insane anxiety and fear of the public, and the consequent creation of outrageous and impossible stories of conditions that are presumed to exist, and which are always supposed to be suppressed by the newspapers and medical officers acting in collusion.

The story of the Amazonian "drug of courage" is published in column 3 as a typical example of the dragging of a bit of romantic news out of advance matter on a convention. Someone knew how to interest the world in a brutally scientific meeting a week ahead of the rap of the gavel.

The "Imbecile Babies" story (col. 3) is such a story as you would expect in the paper which printed it; and it earned its space on the old time human interest ground of the emotional appeal of a tragedy of childhood, and of any story coming so close to the fears and aspirations of women.

In support of what Dr. Jacobs said, it is a curious fact that in the mind of the journalistic world, broadly speaking, a man may write a book and the book is not news. Let that same man, after having published his book, come to our city and lecture before this organization, and the reporter sitting somewhere in the audience will deliver his remarks to the public via the newspapers as news, though they may be identical with passages in the book. There are reasons for this judgment, into which I will not go. But these things one must take into account, whether they seem to the credit of the newspaper or not. I am not here as an apologist for the press, nor am I here to discuss whether it ought to change its methods. I am here to discuss with you the problems you have to confront in the newspaper—as it is.

I think you must take into account the opportunity you have to take advantage of the stories that present themselves to you regarding symptoms, diseases, misfortunes, and their alleviation. Those stories never fail to have an appeal, as we learned years ago when Hostetter's Almanac and others were read carefully, scrutinizingly, by at least two generations, for all of the latest details of the symptomology of all diseases, from tuberculosis to house maid's knee.

Mr. Jacobs raised the problem of what news is. I am inclined to disagree with any newspaper man who says there is a sixth sense, or a "nose" for news. I don't think so. I think what there is, is

common sense and modesty. To be good newspaper men, and good publicity men, we need a developed consciousness of what interests the public, and that consciousness is best put into action by examining one's own mind and asking what interests oneself. If one can only modestly acknowledge that he does not know all there is to be known, and that his taste for knowledge is pretty much the taste of the people whom he holds in Philistine contempt, then I think he is on the way to an understanding of publicity.

Of course, we must discount our own special knowledge. We must say: "I know that, but I just acquired that knowledge at college yesterday," or "in the laboratory today," or "ten years ago," but "the public at large has not had the opportunity I have had to acquire it. Now discounting that little special knowledge I have, if I were just a human being I would be interested in the fact that a train can run on milk; therefore, ten million other people are interested in the fact that a train can run on milk." But that requires a sacrifice of one's own pride of position, one's self-congratulatory sense that he is different from the world at large.

Scientific facts may be old to you but new to the public. It then becomes your obligation frequently to retell old tales. And, let me say that this furnishes you an opportunity to combat the quack with one of the strongest weapons known, a backfire of counter publicity.

Many of you have known, through the *Journal of the American Medical Association* and through your own societies, of scandalously unscientific experiments made by incompetents in the medical profession; or attempts at the creation of a cure-all, a panacea for a broad range of evils—shot-gun remedies, I think you sometimes call them. You know of attempts at self-exploitation by men of low professional standing and dignity and you have kept their impostures secret, with the result that in the course of time the quack has beaten you to the newspaper office, and the newspaper and the public have simultaneously become victims of this evil representative of a noble profession.

The best way to defeat the quack is to expose him before he himself has got the center of the page. You know very well from experience with turtle serum and other notable "cures," that once such "cures" gain credence through the claims of their "originators," relatively little can be accomplished by solemn repudiation. A denial usually lacks the interest and the weight of an affirmation.

Newspaper illustration is a thing you should ever have in mind. Many times a piece of "art," as we call all pictures, would carry a story you could hardly get into print, without illustration. Whether you may offer a propaganda cartoon (which is of doubtful value to the bigger newspapers), or a photograph of an occurrence, an event, a person, or a thing, you should always have in mind the possibility of illustrating a story, not only because it may make it more acceptable to a newspaper, but because it makes it many times more effective with the public, focusing attention, attracting attention to it.

Now, let me conclude my remarks by saying that you must, as I have suggested, study the technique of the journalist whether you like it or not, or whether you are limited in time or not, because you are engaged in a great educational enterprise. You public health educators must learn the medium with which you are working. It is not exclusively a medium of test tubes and microscopes and slides; it is a medium that involves anything that will carry information to the public, and if you want to be of greater service to the newspapers, and to the public through the newspapers; if you want to be sure to strike home with effective publicity, you must learn the order of values in news, which I would put roughly for your service:

First, created news, in a big sense, as in the case of this milk story. No one

else had that story. It was in Dr. Bundesen's mind, and he created it, as news, by getting the coöperation of a railroad; by obtaining the spoiled powdered milk, and the other things necessary in the experiment. It became great news, and his exclusive news. That is a triumph in publicity—to create news; to make things happen in your town that the newspapers cannot possibly ignore.

Then you must anticipate news. If you cannot create it, at least see that it is coming. You know a great many things are going to happen in the world because you know what the cycle of events is with respect to public health, and you can anticipate the news that is certain to develop. You have examples in the *Health Extra*, I think, of anticipation.

In the third place, you can observe news developments and participate in them; as an example take that story headlined "Health Guardian Turns Guns on Nuisances," or the story captioned "Incinerators or Dike Will Solve Odors, Horwitz Says," in columns two and three. The people complained of the frightful odors in that town, and the medical officers observed this development of public excitement over nuisances; they participated in the news by at once taking steps to eliminate the unwholesome condition and by giving an interview published earlier than the story you have here in this *Health Extra*.

Lastly, if you cannot create news, anticipate news or observe it and participate in it, then you can at least reflect upon news and survey past events, pointing out their significance, forecasting the results, thus giving that rather editorial comment upon news events which is a part of the education of the public.

There are limits to which no one could or should expect a guardian of the public health to go to achieve his end in the way of public education on health; but I think the public health officer owes it to himself and society to make an earnest and intensive study of the public mind; of the avenues that approach that mind; of the printed page as an agency for the dissemination of intelligence; of the technique of publicity. He is at once teacher, preacher, and physician. If his talent be restricted to one of those fields, he must supplement that talent with a staff to whose opinions he will reasonably defer. He must recognize the limitations of a newspaper's space; the breadth of the news fields the newspaper must cover; the disproportionate importance he may attach to his own work; the necessity of deferring sometimes to expert editorial judgment. He must come to recognize the value of dramatized truth, and to respect it as being something more than the vulgarly and cheaply sensational which we all abhor. He must desert the intellectual and scientific Brahmins, and come down among men, bringing with him, to be sure, his precious budget of scientific knowledge and professional integrity, as a leaven to the democratic loaf.

SEWAGE ANALYSIS AND ITS INTERPRETATIONS*

F. W. MOHLMAN, PH.D.
Chief Chemist, The Sanitary District of Chicago

FEW CHEMISTS are in complete agreement as to what analytical determinations comprise a sewage analysis. The number of determinations to be made depends upon the purpose for which the analysis is to be used and the source of the sample of sewage, effluent, polluted water or industrial waste. I assume that sewage analyses are usually made for the purpose of measuring the strength of a sewage or the degree of pollution of a stream, for determining the degree of purity or stability of an effluent, or for evaluating the effect of certain chemicals or polluting compounds present in industrial wastes. We make analyses for all these purposes in the laboratories of the Sanitary District of Chicago. Judgment is required in choosing determinations that may be of most value. I wish to indicate our general procedure in sampling and analyzing sewage and effluents, and to discuss the interpretation of the results of our analyses.

SAMPLING

It is not worth while making an analysis of a sample of sewage unless the sample represents a true composite of the sewage flow. Accurate sampling of sewage is as important as accurate sampling of coal, but facilities are not always available for getting samples continuously day and night, and some refinements of sampling technique must be given up. It is essential, however, in my opinion, to collect a composite sample of raw sewage. The only exception might be in case a number of analyses of hourly samples indicated that the average strength might be expected at a certain hour, at which time the collection of a single sample might be justified. This should be permitted only for routine control of a sewage treatment plant where it is impossible to have samples collected at night. When gauging and sampling a sewer for the first time, samples should be composited at least once an hour proportional to the flow. A simple way is to proportion the individual samples in cubic centimeters to the calculated discharge in second feet, using some simple factor if necessary in order to adjust the volumes correctly.

We have at times made gaugings and composited samples as frequently as at intervals of 10 minutes, especially when sampling industrial wastes. It is desirable to collect the single samples in a wide-mouth quart bottle, from which the proper quantity can be measured into a graduated cylinder and poured into a gallon bottle. If care is taken not to introduce excessive air the composite sample (unsterilized) may be used for the determination of oxygen demand. I believe this is more satisfactory for sewage analyses than taking four to six samples throughout the 24 hours only for oxygen demand determinations. For polluted river waters, with oxygen demand below 50 parts per million, individual samples must be collected.

An automatic sampler is valuable for routine sampling of effluents or liquors containing no large particles of suspended solids; but I do not know of any type of automatic sampler that is satisfactory for raw sewages or wastes. We have used one at our Corn Products Testing Station, where the wastes contain no large

* Read before the Sanitary Engineering Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 22, 1924.

insoluble particles, that has been very satisfactory. The device, designed by the Loss Department of the Corn Products Refining Company, consists of a tipping bucket with a partition which cuts at each tip the stream of liquid flowing by gravity into the bucket from a ¾-inch pipe. An open tube is soldered to the partition at the place where the stream of water strikes it, and this tube is connected to a rubber hose that leads into the sample bottle. As the open tube momentarily crosses the stream of water a small volume of the sample is caught and discharged into the bottle. By this arrangement a very large cut may be made so that approximately one gallon may be collected in 24 hours from a comparatively large flow of sewage.

ANALYTICAL DETERMINATIONS

A few important determinations made on an accurate sample of sewage or effluent are worth more than a large number of determinations, some of dubious value, made on an unrepresentative sample. The relative importance of analytical determinations depends upon the purpose for which the analysis is made. Uusually analyses are made to show the concentration or condition of sewage and its amenability to treatment, or to evaluate the work done by treatment processes. In my opinion the relative values of the determinations usually made are as follows, reading down with the most important ones listed first.

If laboratory facilities permitted only a limited amount of work I would undertake as many determinations as possible in the order listed. Under special condition where the presence of iron, fats, lime wastes, or other industrial wastes complicates the treatment processes it may be desirable to make additional determinations. No attention has been paid to bacteriological results, but in cases where the treatment is undertaken as a measure of protection for a water supply, counts of bacteria and bact. coli may be of first importance. Occasionally it may be desirable to determine nitrites and nitrates in raw sewage, where presence of ground water or freshness of the sewage cause an appreciable increase in their concentration, usually negligible.

BIOCHEMICAL OXYGEN DEMAND

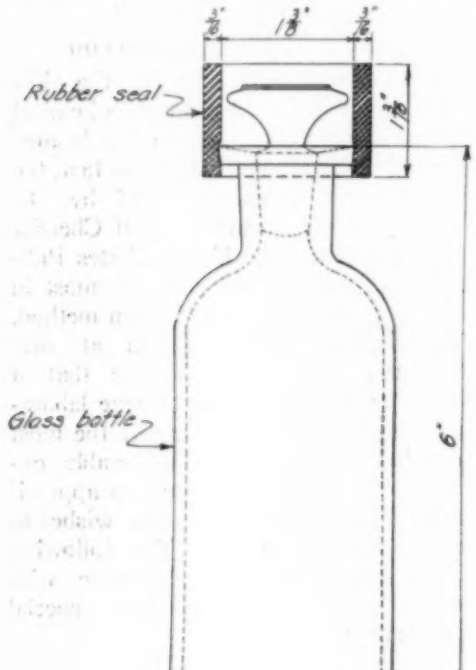
Both the nitrate method and the dilution method of determining biochemical oxygen demand are used in the laboratories of the Sanitary District; in fact, the nitrate method was developed by Dr. Arthur Lederer, formerly Chief Chemist of the District. The United States Public Health Service has been foremost in advancing the use of the dilution method. The dilution method seems at first acquaintance to be so simple that it should be in use in every sewage laboratory, but in reality it is one of the most difficult, and requires considerable experience in its technique and an appreciation of its shortcomings if one wishes to get satisfactory results. The following points based on our experience with thousands of tests are of special importance:

RELATIVE VALUE OF ANALYTICAL DETERMINATIONS

Sewage Concentration	*Partial Treatment*	*Complete Treatment*
1. Biochemical Oxygen Demand (Dissolved Oxygen)	1. Biochemical Oxygen Demand (Dissolved Oxygen)	1. Relative Stability (Nitrite Nitrogen) (Nitrate Nitrogen) (Dissolved Oxygen)
2. Suspended Solids (Total, Volatile, Fixed)	2. Suspended Solids (Total, Volatile, Fixed)	2. Biochemical Oxygen Demand
3. (Total Organic Nitrogen) (Ammonia Nitrogen)	3. (Total Organic Nitrogen) (Ammonia Nitrogen)	3. Suspended Solids (Total, Volatile, Fixed)
4. Chlorides	4. Oxygen Consumed	4. (Total Organic Nitrogen (Ammonia Nitrogen)
5. Oxygen Consumed	5. Settleable Solids	5. Oxygen Consumed
6. Settleable Solids	6. Alb. Ammonia	6. Settleable Solids
7. Total Solids (Total, Volatile, Fixed)	7. Alkalinity	7. Alb. Ammonia
8. Alb. Ammonia		8. Alkalinity
9. Alkalinity		

1. The water used for dilution should be stored for at least a week and should contain from 8.5 to 9.0 p.p.m. dissolved oxygen and be at about 20° C. The water should not be used if the oxygen is above 100 per cent saturation. We have obtained more consistent results with Lake Michigan water (Chicago tap water) than with distilled water or deep-well water. The water should not contain iron, hydrogen sulphide, nitrites, nitrates, color, or excessive alkalinity.

2. We use 8 ounce glass-stoppered tincture bottles with a rather wide lip at the neck of the bottle, over which may be slipped a collar of radiator hose, which is



Bottle and Seal used for Biochemical Oxygen Demand Dilution Method by the Sanitary District of Chicago.

filled with the diluted sample. The radiator hose may be obtained at automobile supply stores. The glass stopper is inserted and pressed down into the rubber collar, forming a closed reservoir of water which seals the stopper and prevents the drawing in of bubbles of air. The oxygen in an equivalent volume of water is only about one twenty-fifth of that in a bubble of air. We have found this type of seal the most satisfactory of some half-dozen we have tried, and believe it is quite essential.

3. Incubation for 5 days at 20° C. seems to be the most satisfactory procedure. It would be desirable to obtain the complete 20-day demand if possible but we have not found it practicable to use such long incubation periods, due to incubator fluctuations, secondary reactions, the large number of bottles and incubator space required, and unsatisfactory results in general. It is desirable to have conversion factors for short-time incubations, but we have found that such factors are rather unreliable for 2-day incubations. In general, the rate of satisfaction follows the same curve as the curve of relative stability, which would give 37 per cent of the total in 2 days, and 68 per cent in 5 days. In work on various wastes and sewages the following ratios have been obtained as the average of several hundred determinations:

PER CENT OF TOTAL DEMAND

	2-day	5-day
Drainage Canal	42	68
Tannery Wastes	35	65
Starch Factory Wastes	55	75

A study of the average monthly results on samples from the Drainage Canal indicates that if the 5-day demand be assumed to be 68 per cent of the total, the 2-day demand varies from 37 per cent in summer to 48 per cent in winter. So many factors affect the rate of depletion during the first three days that it is hardly safe to attempt to use a factor for conversion to complete demands, but the 5-day demand is on the portion of the curve where it is beginning to flatten out, so that the errors are of less magnitude. Individual determinations may give results that show wide variations even for the 5-day factor, but if a series of results is averaged, the factor for typical domestic sewage should be quite near 68 per cent.

4. The most common criticism of the dilution method has been that results from various dilutions do not seem to check. Most of the reasons for this have been discussed by Theriault and Hommon,[1] but it seems to me that there are still degrees of depletion in which it is difficult to check results. We have had difficulty in getting satisfactory results in dilutions in which the depletion is less than 2.0 p.p.m., and on the other hand, where the depletion is so great that less than 1.0 p.p.m. residual oxygen remains. It is difficult to guess correct dilutions on an unknown sample, but a safe procedure is to make up several dilutions each 50 per cent of the preceding, and consider as the most satisfactory result the one in which the depletion is from 4 to 6 p.p.m.

We have compared the dilution and nitrate methods several times, each extending over some months, with fairly satisfactory results, but there is some question as to the proper factor for conversion of nitrogen to oxygen. The factor used is 2 Nitrogen to 5 Oxygen or 1 to 2.86, but this factor is correct only if the nitrate is reduced to gaseous nitrogen. If the reduction is to nitrite the factor should be 1 Nitrogen to 1 Oxygen or 1 to 1.14, while if the reduction should go as far as the formation of ammonia the factor would be 1 Nitrogen to 4 Oxygen or 1 to 4.57. The reduction is usually to nitrogen, with the errors due to too little reduction (to nitrite) and to too great reduction (to ammonia) balancing each other. However, very great errors may occur if an incorrect factor is used, and we need more comparative results from a variety of sewages in order to establish the interchangeability of the two methods.

USE OF OXYGEN DEMAND RESULTS

The conception of an oxygen balance as the fundamental basis of the analytical study of sewage treatment and stream pollution is due to Professor Earle B. Phelps. It is easy to understand as it is simply a balance of the oxygen reserves of a stream, plus its capability for reaeration, against the oxygen demand of the sewage discharged into it, both expressed in, say, pounds per 24 hours. There are a good many difficulties in applying this general principle to the study of a specific stream, but the United States Public Health Service for many years has been studying the practical application of the principle in connection with the Ohio and Illinois Rivers, and it has been of great importance in the analytical studies and surveys made by the Sanitary District of Chicago. It has been possible to evaluate the strength of industrial wastes in equivalent human population by use of a per capita factor of oxygen demand.

Tests extending over several months were made at the 39th Street Pumping Station, in which samples were collected and flows determined hourly. The results of oxygen demand determinations (10 days incubation at 20° C. by nitrate method) were calculated to pounds per 24 hours and divided by the estimated population tributary to the sewer. The results were as follows:

Average pumpage, gallons per 24 hrs.	71,000,000
Oxygen demand, mg. per liter	121
Total lbs. oxygen per 24 hrs.	71,600
Population tributary to sewer (1914)	324,000
Lbs. oxygen per capita per 24 hrs.	0.22

Surveys of stockyards, corn products and tannery wastes have been made in considerable detail and the total oxygen demand calculated in pounds per 24 hours. This oxygen demand is therefore on exactly the same basis as the human oxygen demand and gives us a more accurate index for the pollution load of such wastes than we could obtain by any other analytical factor. There are, of course, differences in the rate of consumption of oxygen, as has been noted before, but the total demand is on the same basis for all wastes or sewages. It is highly desirable to have this factor checked by other investigators, even though it may be a rather close approximation for Chicago sewages. But the Chicago sewage flow is at the rate of 275 gallons per capita, giving far greater

dilution and dispersion to the putrefactive compounds than would occur in a more concentrated sewage.

In the survey made by the United States Public Health Service in 1920 of some 15 sewage plants in the United States (*Bulletin* 132, p. 115) the per capita oxygen demand, calculated to the 10-day basis, for the sewage of eight cities averaged only 0.15 lb. per capita. These cities ranged in population from 28,000 to 520,000 and had sewage flows of from 64 to 137 gallons per capita. We have also had indications that our factor of 0.22 lb. may be too high for the sewage at our Des Plaines River Treatment Works, where the per capita flow is much lower than it is in Chicago. It would be very desirable to have more data on this factor for sewages from other cities.

The reduction of oxygen demand is the best index of the work accomplished by treatment plants, especially settling tanks. The Imhoff tanks at our Calumet Works reduced the oxygen demand of that sewage by 46 per cent during the year 1923–24.

In a completely treated effluent it is possible to remove all of the oxygen demand and even to increase the resources of available oxygen by developing potential oxygen in nitrates. If an effluent is completely stable it indicates that at least 99 per cent of the oxygen demand has been removed. If the effluent is only partially stable and the nitrites, nitrates and dissolved oxygen are known it is possible to calculate its oxygen demand.

RELATIVE STABILITY

It is rarely worth while to determine the relative stability of a raw or settled sewage, but the determination is of great value for a completely treated effluent provided it is used intelligently. It cannot be used if the sample contains suspended or colloidal matter, as the methylene-blue is adsorbed and precipitated. It cannot be used if the sample contains germicides such as free chlorine, calcium hypochlorite, bisulphites or copper salts. Above all, it cannot be used on lime-precipitated effluents containing free caustic alkalinity, as an entirely fictitious stability is obtained. For example, in some experimental tests on lime precipitation of our Maywood sewage we obtained a fictitious methylene-blue stability of 14 days (96 per cent) on a sample containing 28 p.p.m. caustic alkalinity. When this sample was diluted with stored tap water and its oxygen demand determined, it was found to have an oxygen demand of 108 p.p.m. with only 7.6 available oxygen to meet it, so that its true relative stability was only 7 per cent.

The decolorization of methylene-blue occurs when all available oxygen both as dissolved oxygen and in combination as nitrites and nitrates, disappears, due to the reducing action of bacteria, which utilize the oxygen to oxidize unstable organic matter. If practically all of the bacteria are killed by excess lime treatment, the oxygen is not utilized and the unstable organic matter is not oxidized, but remains, as it were, preserved until the causticity is removed by dilution with water containing carbon dioxide and bicarbonates. The bacteria then begin to grow and quickly use up the available oxygen, followed by decolorization of the methylene-blue and ensuing putrefaction. This indicates that the apparent stability of the undiluted sample was fictitious and that it was in reality quite unstable and ready to putrefy as soon as the germicide was removed.

SUSPENDED SOLIDS

Determinations of suspended solids, total, volatile and fixed, are indispensable in practically all sewage work. Although such determinations are not always of value as an index of concentration, they are necessary for computations of sludge removal, sludge digestion and clarity of effluent. Per capita factors based on suspended solids are not of much value as sewages differ so greatly, dependent upon whether the sewers are separate or

combined, whether or not the sewage contains tannery or pickling wastes, and upon the method of analysis.

Filtration through an asbestos mat in a gooch crucible is the most satisfactory method of determination, but even with this colloidal dispersions are not removed. These colloids may be coagulated, for example, in activated sludge treatment, and thus add to the weight of sludge formed, although not included in the determination. Buswell has devised an ultra filter which will remove most if not all of these highly-dispersed solids.

NITROGEN COMPOUNDS

The nitrogen cycle is of such importance in biological sewage treatment that no sewage analysis is complete unless some nitrogen determinations are made. The total concentration of ammonia plus organic nitrogen is one of the most valuable indices of the strength of sewage, and of considerable importance in determining what rates of treatment may be used. For example, in our work at the Corn Products Refining Company we have found that there is a well-defined limit of ammonia plus organic nitrogen at about 50 p.p.m., below which the activated sludge process will work very satisfactorily, while above it considerable difficulty is encountered. There is excellent correlation in general between organic plus ammonia nitrogen and oxygen demands, but the former results can be obtained quickly and are of more value as a control determination than are oxygen demands. The concentration of organic plus ammonia nitrogen defines the loading that may be applied to sprinkling filters, as shown by results compiled by Mr. S. A. Greeley[2] from 10 sewage treatment plants.

The ratio of these two forms of nitrogen varies widely. For most fresh, weak Chicago sewages the ratio of ammonia to organic nitrogen is approximately 1 to 1 or 2 to 1; for packinghouse wastes the ratio is 1 to 4 (22 p.p.m. ammonia, 79 p.p.m. organic); for corn products wastes as high as 1 to 10 (5 p.p.m. ammonia, 50 p.p.m. organic). The age of sewage may be estimated to some extent by this ratio, as most industrial wastes reach the outfall quickly and do not remain in sewers long enough to permit much ammonification. In addition, some wastes, such as corn products, are partially sterilized by sulphur dioxide, which retards ammonification. In stale septic sewages, on the other hand, the ratio is reversed and may be as high as 5 ammonia to 1 organic.

Determinations of nitrite and nitrate nitrogen are indispensable for activated sludge or sprinkling-filter effluents. At our Des Plaines and Calumet activated sludge plants the amount of air used is adjusted to maintain from 3 to 5 p.p.m. of nitrate in the effluent. If the nitrate content drops below this lower limit the air is increased. We have also found that the activated-sludge filters most readily when the nitrates are highest. Nitrates furnish a factor of safety that is essential, in my opinion, for continuous satisfactory operation, as they maintain sufficient reserve oxygen to take care of sudden shots of anerobic sewage or septic wastes, which otherwise might turn the entire contents of the tank septic.

It is always interesting to get a nitrogen balance for a complete treatment process, and in order to do this all four forms of nitrogen must be included. There seems to be very little excuse for continuing determinations of albuminoid ammonia on sewage, as it is only a proximate method and the results cannot be used (without a factor) for totaling nitrogen contents.

OTHER DETERMINATIONS

For many years the per cent reduction in the permanganate oxygen consumed has been used as a measure of the efficiency of a process, but in my opinion it is a very unreliable determination and is not of much value either as a measure of the strength of sewage or of the efficiency of treatment. As an analytical

method it is no more exact than the biochemical oxygen demand, and shows at least as great discrepancies between results obtained on several dilutions of the same sample.[3] One can obtain quite variable results by varying the dilutions or the concentration of permanganate. There is no satisfactory ratio between the biochemical oxygen demand and permanganate oxygen consumed of sewages or effluents. The results of the two determinations are occasionally confused, however, and someone tries to balance dissolved oxygen and permanganate oxygen consumed, when in reality there is no relation between them.

Total solids are not a good index of the strength or condition of sewage, although volatile total solids sometimes have some value, as we have found in our work on corn products wastes.

Chlorine in chlorides is at times of value in estimating the degree of dilution of sewage, but frequently is influenced by waste waters in the sewage coming from ice-cream factories, packinghouses, or sea water used for condensing. When a series of samples is collected from various parts of a treatment plant the accuracy of sampling may be checked by comparison of the chloride contents of the samples.

Determinations of settleable solids in Imhoff cones are of considerable value for supervision of treatment works too small to warrant employment of a chemist, as such observations enable the operator to determine and keep a record of the degree of unloading of tanks or filters, but as an exact laboratory method this determination is rather unsatisfactory if results are reported in cubic centimeters per liter, as the volume of settled solids may vary quite widely in duplicate determinations. If suspended solids are determined by weight in the liquor before and after settling the results are of more value.

Many additional determinations are of value in investigations of industrial wastes such as sulphur dioxide, hydrogen sulphide, ferrous and ferric iron, phenols, sulphocyanides, fats, etc., but this list could be extended indefinitely. Determinations of hydrogen-ion concentration have not proved to be of much value except in control of sludge filtration.

CONCLUSIONS

The most valuable determinations available in sewage work are the biochemical oxygen demand and ammonia plus organic nitrogen. There is a real need for the use of these determinations in analyses of sewages from widely differing sources, and the compilation of more per capita factors than we now have.

The dilution method for determining oxygen demand is still far from perfect, and requires more work on the influence of various types of diluting water, on the rate of depletion at various temperatures, and on the relation of the dilution method to the nitrate method.

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THE MORGAN GROUP OF PARATYPHOIDS*

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IN 1906, H. de R. Morgan reported the isolation of an organism, from diarrheal stools of infants, which resembled the paratyphoids but which could be readily distinguished and differentiated from the paratyphoids by its failure to ferment mannitol. This organism has since become known as *Bact.* (or *Salmonella*) *morgani*. It appears to be an intermediate form between the paratyphoid and proteus groups, resembling the former and differing from the latter in failing to attack sucrose; while its inability to form acid or gas from mannitol allies the Morgan bacillus to the Proteus group, and differentiates it from the true paratyphoids.

The cultures employed in this study were isolated by one of us (Levine) from stools of infant diarrhea cases in the Children's Hospital, Washington, D. C., during the summer of 1919. Of the nineteen cases examined, organisms of the paratyphoid or dysentery groups were absent (or not detected) in five. One sample contained Flexner dysentery and two paratyphoid bacilli, while in eleven of the stools bacilli of the Morgan group were the only non-lactose fermenters found. Isolations were made by direct plating and after preliminary enrichment for about six hours in peptone water. The plating medium was prepared as follows:

Distilled water	1000.0 c.c.
Peptone (Difco)	10.0 g.
K_2HPO_4	4.0 g.

Boil until dissolved. Make up loss due to evaporation and without filtering place 100 c.c. quantities in flasks or bottles. Sterilize at 15 pounds for 15 to 20 minutes.

To each 100 c.c. of the melted medium, prepared as above, was added the following:

Lactose (20.0% solution)	5.0 c.c.
Glucose (5.0% solution)	1.0 c.c.
China blue (0.5% solution)	1.0 c.c.
Rosalic acid (1.0% solution)	1.0 c.c.

Lactose fermenting colonies are blue, others colorless or pink on this medium.

Thirty cultures obtained from the eleven stools mentioned above, and one strain secured from the American Museum of Natural History were employed in our studies. The museum strain was their No. 692, originally isolated by H. E. Smiley from the stools of an infant at the Providence Hospital.

MORPHOLOGY AND PHYSIOLOGICAL CHARACTER

Morphology: All strains were gram negative short rods, which stained readily with carbol-fuchsin, methylene blue, and gentian violet. Spores were not found.

Motility: Examination of hanging drops of 6 hour broth cultures (37°) showed two (40 and 43) to be non-motile; all other strains were actively motile. Observations with semisolid agar confirmed these results.

Litmus milk: This medium was observed for 25 days at 37°C. Two strains (1 and 18) become slightly alkaline, and one (38) became slightly acid after 25 days. Strain 2 decolorized the medium, coagulated the milk and showed an alkaline reaction in 15 days, being acid in 25 days. Cultures 40 and 43 decolorized the medium, showed an alkaline reaction and slight digestion. All other strains produced no apparent change in litmus milk during a period of 25 days at 37°C.

Hydrogen sulphide: All cultures blackened lead acetate agar (made with

* Read before the Laboratory Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 21, 1924.

3% Wittes peptone), but cultures 40 and 43 much more vigorously than the others.

Reduction of Nitrates: There was no evidence of production of nitrites from nitrate broth after 4 days at 37°C.

Gelatin: It was not liquefied in 25 days at 20°C.

Indol: Tryptophane broth, as recommended in *Standard Methods of Water Analysis* (A.P.H.A. 1923), was employed, and incubation was at 37° for 3 days. The cotton plug test suggested by Malone and Goré was utilized for the detection of indol. The tip of the cotton plug was moistened with a few drops of para-dimethyl-amino-benzaldehyde and a saturated solution of potassium persulphate, and the plug was then pushed into the culture tube within about an inch from the surface of the medium. The tube was then placed in a water bath at a temperature just below boiling for 15 minutes. The presence of indol was indicated by the production of a red coloration of the cotton plug. The method is very delicate and eliminates errors due to non-volatile substances which may react with the indol reagents.

Cultures 40 and 43 did not produce indol. All other cultures were distinctly positive.

Fermentation of carbohydrates, etc.: Acid and gas formation was recorded after 48 hours at 37°C. The medium consisted of 1.0% peptone (Difco), 0.2% K_2HPO_4, 1.0% Andrade indicator and 0.25 to 1.0% of the test substance.

Neither acid nor gas was produced from any of the following substances: arabinose, rhamnose, lactose, sucrose, maltose, raffinose, melezitose, starch, glycogen, inulin, erythritol, dulcitol, sorbitol, mannitol, perseitol, arabitol, amygdalin, esculin, salicin.

Glucose and levulose were fermented with acid and gas production by all strains.

The reactions with other carbohydrates are summarized in Table I below.

One strain (2) differed from all others in that it fermented adonitol and failed to attack galactose. Two cultures (40 and 43), produced acid and gas from xylose, trehalose and glycerol, but not from mannose, whereas all other strains showed the reverse reactions with these substances.

Voges-Proskauer Reaction. None of the strains studied produced acetyl methyl carbinol from glucose or other fermented carbohydrates.

On the basis of morphological and physiological characters, three groups may

TABLE I

DIFFERENTIAL CHARACTERS OF THE MORGAN GROUP OF BACTERIA

		Acid and Gas										Agglutination, with sera from groups			
Group No.	Strain No.	Xylose	Galactose	Mannose	Trehalose	Glycerol	Adonitol	Motility	Litmus Milk	H_2S	Indol	I	II	III	Culture Nos.
I	28	—	+	+	—	—	—	+	No change	+	+	Variable. Some + others —	—	—	1, 3, 4, 5, 8, 9, 11, 12, 13, 14, 15, 17, 18, 21, 23, 24, 25, 26, 31, 34, 35, 38, 42, 44, 45, 47, 48, 50
II	1	—	—	+	—	—	+	+	Sl. alk. then acid	+	+	—	+	—	2
III	2	+	+	—	+	+	—	—	Alk. Decolorized	++	—	—	—	+	40, 43

be readily distinguished. This subdivision is markedly correlated serologically as may be seen in Table I.

All strains fermented glucose and levulose with acid and gas.

The following were not attacked with acid or gas production by any of the strains: arabinose, rhamnose, lactose, sucrose, maltose, raffinose, melezitose, starch, glycogen, inulin, erythritol, dulcitol, sorbitol, mannitol, perseitol, arabitol, amygdalin, esculin and salicin.

AGGLUTINATION RESULTS

Agglutinating rabbit sera were prepared for nine of the strains isolated in Washington, and also for the American Museum culture. Dr. Yull of the Michigan State Board of Health Laboratories kindly furnished us with a serum for the Lister Institute strain of the Morgan bacillus, a subculture of the original Morgan strain.

The titre of all cultures for each of the sera is given in Table II. The suspensions employed were made by washing off 24 hours (37°C.) veal infusion agar cultures with 0.85% salt solution containing 0.4% phenol. The suspensions were not heated. After ascertaining the concentration of one of the suspensions (14) which gave optimum agglutination results with its homologous serum, all suspensions were adjusted to this same turbidity.

From Table II it will be readily seen that serum 2 is quite distinct in that it agglutinates only its homologous organism. It has already been pointed out that this strain differs from all others in its failure to ferment galactose, and in its decomposition of adonitol. This strain, therefore, represents a distinct cultural and serological type.

Serum 40 agglutinated only its homologous strain and culture 43, and similarly serum 43 agglutinated organisms 40 and 43 but no others. It was observed that each of these organisms completely absorbed the agglutinins from both of these sera so that they are agglutinatively identical. These two strains differ from all the other cultures in several respects. Thus they are non-motile and do not form indol; they ferment xylose, trehalose, and glycerol, but not mannose. They evidently constitute a distinct cultural and serological group.

All of the remaining strains were culturally indistinguishable, but many antigenic differences were observed.

With a serum made from culture 12, strains 1, 9, 11, 12 and 26, were agglutinated in high dilution. Each of these cultures completely absorbed the agglutinins for all of the others from serum 12. These organisms were isolated from three different cases. Strains 1 and 9, were also agglutinated by serum 34 (the latter only in very low dilution), but they absorbed only their own agglutinins from this serum. These five organisms seem to constitute a serological subgroup.

The serum for organism 24 agglutinated strains 18, 24, 44 and 45 in comparatively high dilution, whereas strains 17, 21, 42 and 50 were agglutinated in considerably lower dilutions. Absorption tests were not performed with this serum.

Strain 24 seems to be related to 50, which is the American Museum culture of the Morgan bacillus. It completely absorbed agglutinins from serum 50. This serum did not, however, agglutinate any of the other strains agglutinated by serum 24, so that the relationship is not clear-cut.

Serum 48 agglutinated only strains 47 and 48, both of which came from the same case. These strains were not agglutinated by any other serum and they completely absorbed the agglutinins from serum 48. A partial agglutination was observed with strains 9, 31 and 34; but even in a dilution of 1–50, the reaction was slight and indistinct. These strains did not absorb any of the agglutinins from serum 48.

The results with serum 34 indicated that it was rather specific for itself and strain 31, isolated from the same case. A number of other strains were agglutinated in relatively low dilution but on absorp-

TABLE II

SHOWING AGGLUTINATION TITRE OF MORGAN GROUP

		Serum from Culture Number										
Case	Culture	2	12	24	34	48	50	40	43	8	14	Morgan**
1	1		1600		1600							
1	2	3200										
1	3									800		200
1	4									1600	1600	3200
2	5									1600	3200	3200
2	8									1600	3200	3200
3	9		3200		100	400*						
3	11		3200									
3	12		3200									
5	13									1600	3200	1600
5	14									1600	3200	3200
5	15									1600	3200	3200
7	17			400						1600		
7	18			1600								
7	21			400						1600		
9	23									200	50	
9	24			3200	400		800					
9	25									200	50	
10	26		3200									
13	31				1600	400*						
13	34				1600	400*						
14	35									†1600		
15	38							1600	1600			
15	40											
17	42			100	200					800		
17	43							800	6400			
17	44			1600	200					800		
17	45			1600	200					800		
19	47					1600						
19	48					1600						
	50			400	400		1600					

* Agglutination only partial even in 1-50 dilution.
**Serum supplied by Dr. Yull (Mich. St. Bd. of Health) and made from original Morgan culture.

tion they showed no effect on the titre of the serum for strains 34 or 31.

There remains to be considered, serums 8, 14 and the Morgan serum which seemed to be markedly associated. The latter was supplied by Dr. Yull of the Michigan State Board of Health Laboratories and was presumably made from the original Morgan strain.

Each of these three sera agglutinated strains 4, 5, 8, 13, 14, 15 and each of these strains absorbed the agglutinins (practically completely) from serums 8 and 14. Absorption tests were not made with the Morgan serum because we did not have its homologous strain available for controls. Strain 3 was agglutinated by serum 8 and Morgan (though not in very high dilution), and it absorbed the agglutinins from serum 8.

Strains 23 and 25 reacted with serum 14 in a dilution of 1–50, but showed no absorption of agglutinins from that serum.

In addition to the organisms listed above, serum 8 agglutinated strains 17, 21 and 35 in a dilution of 1–1600 (which was the full titre of the serum); strains 42, 44 and 45 in a dilution of 1–800, and cultures 23 and 25 in only 1–200. Although none of these cultures absorbed the agglutinins from serum 8 for its homologus strain, it was rather interesting to note a correlation between the titre and the absorption results. Thus strains 17, 21 and 35 absorbed the agglutinins for

each other from serum 8; cultures 42, 44 and 45 did likewise among themselves, as did also 23 and 25. In no instance did absorption with an organism from one of these three subgroups appreciably affect the titre of strains in the other two groups.

From the observations with serums 8, 14 and Morgan, it is felt that a group of organisms (represented by cultures 4, 5, 8, 13, 14, 15 and possibly 3) which is identical culturally and agglutinatively with the original Morgan bacillus, has been isolated from cases of infant diarrhea in Washington, D. C.

SUMMARY

Thirty cultures of Morgan bacilli isolated from cases of infant diarrhea, and one strain from the American Museum of Natural History were studied as to their morphological, cultural and agglutination characteristics.

Three groups could be readily distinguished by cultural and serological tests as follows:

(a) One strain differed from all others in that it failed to attack galactose and did ferment adonitol. It was serologically distinct from all other cultures.

(b) Two strains were non-motile, did not produce indol, and further differed from all other cultures in that they produced acid and gas from trehalose and glycerol but not from mannose. Serologically these strains were identical, but distinct from all other cultures.

(c) The third group comprises the remaining cultures. Several distinct serological subgroups could be distinguished by the agglutinin absorption test.

Seven cultures, which seem to be identical with the original Morgan strain were isolated from three cases.

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THE EFFECT OF INTERFERENCE IN OBSTETRICAL CASES*

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THE EFFECTS of interference in obstetrical cases are for the most part the results of injury, accident and infection, and depend largely upon the proper evaluation of conditions and indications in the given case, the skill of the operator, the condition of the mother and unborn child, and the local facilities for asepsis.

It is undoubtedly true that there are far more operative deliveries for insufficient or poorly chosen indications than a careful analysis would justify. On the other hand the well trained and experienced obstetrical surgeon in proper surroundings may attempt successfully methods of interference in certain cases with an actual lowering of both fetal and maternal mortality and morbidity.

There are certain fairly well defined conditions and indications for different obstetrical procedures which have been found by long experience in competent hands to be the best methods at our disposal for escape from difficulties arising during pregnancy and labor. It is by the proper selection of the operation to be performed, combined with a reasonable skill in its performance, that the obstetrician hopes to substitute a lesser for a greater evil with the least possible injury to the mother and child.

It is evident, as noted by Foote, in commenting upon the difficulty in obtaining country-wide statistics upon the relative frequency of birth injuries as a cause of infant mortality; that the International List of Causes of Death to which the Census Bureau conforms is notable for the omission of many important causes. For example, birth injuries from forceps is mentioned, but from all other causes ignored. He also calls attention to the fact that hospital statistics usually record a higher percentage of birth injuries as a cause of death than the community statistics. Thus, Columbia Hospital, Washington, D. C., gives 9.4 per cent of all deaths due to this cause, while the corresponding community figures show 6.7 per cent. The Maternity Center Association of New York places about half its mothers in hospital and shows 15.5 per cent of all deaths due to difficult labor while the general community figures shows 13.5 per cent. In my experience this is quite to be expected, although by no means universally true, in view of the numbers of primiparæ and cases of difficult operative delivery that are hospitalized.

In the Registration Area in the year 1919 (including twenty states and the District of Columbia and 53 per cent of the population), 4.5 per cent of deaths under one year of age were attributed to injuries at birth. In other words, about 16,000 babies die annually from this cause alone. True, the death rates from prematurity (21.8), diarrhea and enteritis (19.4), and congenital debility (9.6) are higher, but not more important when we consider the difficulties attendant upon a universal lowering of the rate from birth injuries.

When attempting to formulate a correct idea as to the frequency of fetal death from injury after different obstetrical operations we find that in a series of 138 fetal deaths occurring in the service of the Woman's Hospital of New York, 38 were due to birth trauma, 16 being due to forceps delivery and the re-

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mainder due to breech extraction or version extraction. Mayer has shown that the forceps operations should be studied in relation to the general fetal mortality and not with relation to the fetal mortality from forceps alone. With this in mind Hienlein reports in 5,444 deliveries 296, or 5.4 per cent were by forceps, and a fetal mortality for all deliveries of 4.3 per cent.

Only twenty babies were lost and 14 of these were delivered because of maternal indications and in most instances the deliveries were difficult. Beides reports 60 consecutive cases of forceps for persistent occiput posterior position without a death. The management of posterior positions is important because the fetal mortality is extremely high. Cornell makes the statement that there are probably more babies lost in these cases than in any other obstetrical presentation, and thinks the reason for this is the failure of the physician to understand thoroughly the mechanism of labor and his failure to make a diagnosis previous to or early in labor. The high mortality is especially evident in the cases delivered by forceps.

Fetal mortality from version is from 2.5 to 15.8 per cent. Potter has done much to bring this procedure to the attention of obstetricians and uses it as a routine procedure in all cases delivered. In his hands the results are excellent with a fetal mortality of about 2.5 per cent for all cases delivered. However, as a routine procedure in all hands it is strongly to be condemned, as is evidenced by the fact that Rucker in a series of 200 deliveries had an average fetal mortality of 15.8 per cent, which surely does not justify his continuance of this operation.

As induction of premature labor is usually done for maternal indications the fetal mortality will depend upon the condition of the mother for which the labor is instituted and the age of the fetus at the time of induction. In this consideration it must be remembered that the mortality among prematures from birth injuries, particularly from meningeal hemorrhage, is especially high.

Ehrenfest has shown that approximately 40 per cent of stillborn infants and those dying within the first few days, have definite evidence of traumatic intracranial lesions. In about 20 per cent of these lesions discovered at autopsy there was no artificial termination of labor. F. J. Browne found that cerebral hemorrhage occurred 16 times more frequently in breech delivery than in vertex, and attributes the greater susceptibility of premature infants to hemorrhage to two causes, viz: fragility of the blood vessels and deficient coagulability of the blood. It may be said, moreover, that the responsibility for such deaths does not always rest with the physician, for these injuries have been repeatedly observed after normal, spontaneous labors, and practically all observers agree that prematurity is an important factor in the etiology of birth injuries.

Maternal mortality from childbirth would seem to be on the increase in the United States rather than otherwise. Statistics from the Birth Registration Area show an increase from 6.1 per 1,000 in 1915 to 8 per 1,000 for 1920, of which 2.7 per cent were due to puerperal septicemia and 5.3 per cent to all other causes. In 1919 the United States stood seventeenth on a list of countries with lower mortality. To approach this appalling maternal death rate it is necessary to revert to the Swedish rate for the years 1806–1810 of 8.9 per 1,000 births. It is more than double the Swedish rate for 1851–55, 75 per cent greater than the average rate for England and Wales for 1847–76, and 120 per cent greater than for 1911–1915. Howard points out that the rate of risk for the mother in the United States is not only greater from all causes (1–113), but from all separate causes.

The death rate in the United States is 2.79 per 1,000 births from puerperal fever (1–407) and for all other causes 6.34

per 1,000 (1–156). In England and Wales (1911–1915) the rates are 1.42 per 1,000 and 2.6, respectively. The rate for accidents of pregnancy (2.43) and labor (1.80) with which we are largely concerned in the United States is 4.23 (1918) and in England and Wales .84.

It can therefore be seen that in accidents of pregnancy and labor, the type of cases in which interference is most common, the rates in this country are greater by 5 times for the former and by nearly 4 times for the latter than those of England and Wales. Surely a matter for serious consideration!

As has been mentioned, maternal mortality, in so far as it can be attributed to the effects of obstetrical interference, is for the most part a question of injury and infection. That mortality from infection should be a much smaller factor in the total death rate can readily be demonstrated by consulting the reports of many good maternity services.

In our service at Harper Hospital one patient died of sepsis in 872 consecutive deliveries (.11 per cent) by many physicians, and this case was febrile on admission. Among 10,000 women delivered at the Chicago Lying-In Hospital there were 12 deaths from sepsis and peritonitis, compared with 1 in 407 cases for the Birth Registration Area.

Probably the greatest prophylactic against puerperal infection to be used in the last decade is rectal examination. We have learned that vaginal examination, probably the greatest cause of febrile puerperia, need be done with extreme rarity during the course of labor, and then usually as a preliminary to vaginal operative delivery. It was proved years ago, that the morbidity and mortality rate from infection after the classical Cesarean operation mounted directly in proportion to the number of vaginal examinations. Furthermore, rectal examination is of greatest value in the cases in which vaginal examination is most dangerous, that is, in the cases confined at home where the facilities for hand sterilization and proper preparation of the patient are not of the best. It is a time and worry saving procedure for the obstetrician in these conditions; its advantages are obvious; its objections are none. By entering the vagina of the woman in labor with the same respect we do the peritoneal cavity of the surgical patient, sepsis can in a great measure be prevented.

The mortality from Cesarean Section varies from 1 per cent to 10 per cent. Why should there be such a wide margin between the best and the worst? There is no doubt, as has been pointed out by several authors, that there are far too many sections done for insufficient reasons, and the mortality, even under the best conditions, is greater than for the average laparotomy. Many surgeons who would not consider attending a so-called normal confinement case, feel no hesitancy in performing Cesarean Section, the indications for which require the nicest obstetrical judgment. In many cases there are no indications for the operation. In others, while interference may be necessary, the choice of section is often unfortunate. Without a doubt the comparative simplicity of the operation influences many operators, who would hesitate to employ some of the more purely obstetrical procedures, to use it as an easy way out of difficulty. One operator reports an incidence of 1 in 14 for Cesarean Section in a series of 1,100 deliveries, surely a sad commentary, when conservative obstetricians find a rate of from 1–40 to 1–80 ample to cover all indications arising in large consultation practices.

The ill advised use of forceps is likely to be associated with serious injury to the maternal soft parts, especially if the physician fails to diagnose the position correctly and attempts to drag an unrotated head through the pelvis.

How much the advocacy of radical procedures as an almost routine procedure by certain physicians high in obstetrical circles has had to do with the mortality rates is a matter of conjecture.

Their own mortality and morbidity would seem to justify, in their hands, the operations they advise. However, as a routine procedure for all physicians they are greatly to be condemned. How many forceps are applied in cases with incompletely dilated cervices, in unrotated posterior positions, in badly contracted pelves, we have no means of knowing; but we can say without fear of successful contradiction that the resultant force necessary for delivery must result in many dead children and injured and infected mothers. Furthermore, we do not think that an infant mortality of 15.8 justifies the routine use of version.

There will always be cases in which interference is necessary, and it is only by individualization that the best results can be obtained. How to interfere, when to interfere—these things must be considered and each case treated accordingly. Medicine is not an exact science and human judgment is not perfect; there will therefore always be a small and unavoidable maternal and infant mortality from obstetrical interference. This is not so much a platitude as it seems when we remember that at times it is necessary to choose a procedure that favors the mother at the expense of the child, and rarely to deliberately sacrifice the child to save the mother. Just what this irreducible minimum of mortality should be is difficult, in fact, almost impossible to estimate. I will venture a statement that in hospital practice the maternal rate should approximate 2.5 per 1,000, the country-wide statistics 4 per 1,000 live births as something to be attained in the near future if prenatal care and better obstetrical teaching are not to be considered a failure.

Unfavorable as the above figures undoubtedly are, there is much evidence that excellent obstetrical results are being obtained in many of the larger centers throughout the country and abroad. This gives us courage to think that the present discouraging rates can be lowered.

In a series of 5,460 cases delivered at the New York Lying-In Hospital, both indoor and outdoor services, there were 22 maternal deaths, a rate of 4 per 1,000 (1–248 cases) or about half the current figures for the Birth Registration Area. Among the last 10,000 women delivered at the Chicago Lying-In Hospital there was a mortality of 3.9 per 1,000. The Rotunda Hospital (Dublin) Report for 1921 shows a maternal mortality of 5.2 per 1,000, including 2 deaths in 66 cases of placenta previa treated by version. The same hospital for 1922–23 shows 6 per 1,000 for all cases cared for. At Harper Hospital in this city for the year 1923, 872 mothers and 879 children were delivered, by many different physicians and the resident staff, with 4 obstetrical deaths (4.6 per 1,000). Seventeen babies were lost from obstetrical causes, a rate of 28 per 1,000.

Considered all together these rates are encouraging and show that in hospital practice where the physical facilities for good obstetrics are at hand the mortality rates can be very appreciably reduced in comparison with the prevailing community statistics. It is to be said also in this connection that while hospitals offer much better facilities than private homes for the care of obstetrical cases, the mortality rate is also influenced in favor of home cases by the comparatively larger number of primiparæ (2 to 1, Harper Hospital), complicated and operative cases that are cared for in hospital practice. So then, if the mortality rates in hospitals can be reduced as shown, in spite of these unfavorable cases, to figures much better than the community at large, there still remains much hope.

In endeavoring to formulate some idea as to what can be done to reduce fetal death rate from interference, we find it extremely difficult to classify the fatalities as to proper etiology; thus in many conditions of the mother which in themselves endanger the life of the child it is at times necessary to interfere, *e.g.*, toxemias, breech, abruptio placenta,

placenta previa. Just how much the operation and the condition for which interference is necessary have to do with fatalities in these cases cannot always be estimated. There should be a practical classification of fetal deaths during parturition, stating in each case whether death is due to maternal, placental or fetal causes.

Proper prenatal supervision by the physician ought to reduce the necessity for operative interference in the toxemias, but it is doubtful whether much can be done along this line in the matter of placenta previa and abruptio placenta, which fortunately are relatively uncommon. In breech positions too rapid delivery of the head is the common cause of high infant mortality. Obstetricians have been accustomed to hurry the delivery of the aftercoming head in order to avoid asphyxia of the child. This is erroneous; for most of these children who die are lost through compression of the head in forcible efforts to rapidly extract the child. Holland finds that as long as ten minutes, if necessary, should be devoted to the delivery of the aftercoming head.

The attainment of a higher plane of obstetrical practice is dependent upon several factors. It is the current opinion in the lay mind that labor is an entirely normal process and unattended by serious risks. Is pregnancy and labor a purely physiologic function? Surely we cannot consider it so when we realize that it causes the deaths of more women in the childbearing age than any other condition except tuberculosis. When the average woman fully realizes the risk to herself and infant attendant upon childbirth she will demand and receive better obstetrical care.

Obstetrics has never attained the dignity among the surgical specialties that it deserves. This is partly due to the notoriously poor compensation and extremely hard work attached to this branch of medicine, and in part to the inadequacy of the teaching facilities in the medical schools. The departments of gynecology and obstetrics should be combined into a single department for teaching purposes. To quote Williams, "the reason for this is two fold: First, the two subdivisions embrace the entire physiology and pathology of the female organs, sufficiently important to occupy fully the attention of intelligent men; and, they overlap to such an extent that when taught separately considerable reduplication must occur. The essential surgical training can be obtained only in gynecology, and, conversely correct gynecologic thinking requires extensive obstetric training." This has already been answered by a majority of our best medical schools, and, together with the requirement of the interne year should result in a higher status of obstetrical surgery.

Dublin has shown that while the death rate from several important causes can be materially reduced by adequate prenatal care, there is no reduction in mortality from conditions requiring obstetrical interference. This, then, is purely a medical problem not to be influenced or solved by legislation of a kind that makes the pregnant woman the ward of the state or of a minor bureau of the federal government. While pregnancy and parturition are naturally of interest to the commonwealth, the conditions in themselves are entirely private matters and should be so regarded. Supervision and control should be a community concern directed as the local conditions demand.

We believe that better obstetrics will result rapidly and surely by the recognition of the need by the medical profession and laity; by improved teaching facilities; by an admission both in the professional and lay mind that it is one of the major branches of surgery, and by a realization that improved care during pregnancy, labor and the puerperium is a purely medical problem with some economic aspects, but a problem that must be kept free of all socialistic tendencies.

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VALUES IN THE MAINTENANCE OF THE HEALTH OF THE CHILD*

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THIS DISCUSSION of values in public health work is one of the symptoms which indicates that we are entering a new phase in public health administration. The expressed determination of many public health officials to establish standards by which to evaluate their own work is of considerable significance. It marks the passage from the quantity to the quality stage.

All too frequently we have been satisfied with the mere examination of the various health procedures which make up our programs. In the earlier days the striking results following the institution of certain hygenic and sanitary measures was sufficient proof of their value both to the health worker and the public. The rapid increase of knowledge about health and disease among both lay and professional workers is changing this condition.

Health officials are being asked about the economic soundness of their proposed budgets. Appropriating bodies are demanding more detailed proofs of the effectiveness of health measures. This may be disconcerting and sometimes embarrassing, but it is a wholesome condition.

The inquisitiveness of the financial supporters of public health, plus the rising scientific standards of our profession, have conspired to focus our attention upon the relative value of the various elements in our programs. The results of an honest, sincere study of such relative values can only result in the survival of the sound procedures and an elimination of the unsound. Every sensible health worker should welcome such a result in the name of both economy and science.

This Association is to be congratulated that its Committee on Municipal Health Department Practice has initiated a plan for the appraisal of health work that is the first step in devising a practical method of evaluating a health program.

A considerable and important part of values in the maintenance of the health of the child necessarily has been discussed by the two previous speakers. Control of environment and of communicable diseases makes up a vital part of any plan for the protection of the health of children as well as adults. In what follows then it will be understood that the speaker has intentionally omitted special reference to these two aspects of his subject.

The first step in the measurement of values in health work is the establishment of standards. Unfortunately our standards have not kept pace with the rapid development of our activities. Valuable as is the increasing accuracy of the compilation and interpretation of mortality statistics, they can only be considered a crude method of measurement. Our morbidity figures are fragmentary and incomplete. They only give an imperfect view of a part of the field. One of the most pressing needs in health administration is the discovery of new measuring rods for the evaluation of health promotion activities. A considerable number of research workers are engaged in an effort to supply this need. Pending the establishment of these newer standards, it should be profitable for us to review briefly the present status of child health activities as judged by present standards of measurement and to indicate

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some of the relative values based upon experience.

One of the most striking accomplishments in the whole field of public health has been the lowering of our infant mortality. Even though the rate of reduction has slowed up perceptibly during recent years, Woodbury has shown that is fell 24 per cent during the period from 1915 to 1921. The detailed statement of the rate of reduction of various causes of mortality is of especial interest. There was a continuous drop in deaths from gastro-intestinal diseases (32.6%); an irregular reduction in deaths from respiratory causes (32.2%); a striking lowering of the communicable disease group (21.7%); a slight increase in the number of malformations resulting fatally, and only a relatively small reduction in the deaths in early infancy (10.8%). It should be stated that these decreases are both actual and relatively greater in the cities than in the rural areas.

The study of these statistics shows a definite corelation between the development of certain public health activities and the reduction in the mortality rates. The exact elements in these activities which have been responsible for this reduction have not been isolated. This task of isolation is the one immediately before us. Woodbury in his recent painstaking study of the causes of infant mortality has furnished us with a basis for the next steps in evaluation.

The relative numerical importance of the various causes of infant deaths has undergone a striking and significant change. Diseases of early infancy have assumed first place with 36.1 per cent; gastro-intestinal diseases are still a close second with 32.4 per cent; while communicable diseases now have the position of honor at the end of the list with 7.1 per cent. With these facts before us it is proposed to discuss the value of certain specialized services which must be included in any well-rounded health program.

Prenatal—It is manifest that the large number of deaths occurring in the first month of life are due largely to causes operative before or at the time of birth. To meet this situation adequately means a careful consideration of the actual causal factors involved. Congenital debility, prematurity and injuries at birth demand education for parenthood and high-grade medical and nursing service. The values to be obtained in this field will be directly proportional to our clear understanding of these necessities.

The responsibility for the effectiveness of this service must be shared by the medical profession with the health official. It is the duty of the public health leader to stimulate interest in this matter with a view to making available for 100 per cent of the mothers in his community adequate prenatal service. Mere establishment of prenatal clinics for the indigent will only touch the surface of the problem. Real prenatal work should begin in the school system by a preparation of boys and girls for parenthood. It must include a raising of medical standards, and the practice of preventive pediatrics by the general practitioners of medicine. It justifies the expenditure of a reasonable portion of the budget of the health department, for it is the soundest and most profitable investment in the whole field of health.

Natal and Neonatal Service—It is recognized that many public health officials have purposely refrained from any attempt to actively promote obstetrical service as part of their program. The writer believes that the time has come for this point of view to be changed or modified. The high maternal and infant mortality at birth challenges the health worker who claims to be developing an all-around public health service. Here again, it is realized that it is the responsibility of the medical profession and medical training institutions to raise the standards of obstetrical practice. But it is also the duty of the public health

officials to make available adequate community facilities both by agitation and education.

No statement of mine is needed to confirm your opinion that the infancy service provided through well-baby conferences and nursing services has had much to do with the reduction of infant mortality. The only question I should like to raise is whether our work is so organized as to make it lead toward the eventual assumption by the home of the responsibility for such personal service, and the preparation of the family physician to furnish it.

Preschool—The comparatively recent discovery of the preschool child has brought with it ample evidence of the great relative importance of this period of life. A careful examination of a large number of preschool children reveals the fact that this is the developmental period for the numerous physical defects about which we hear so much. To this period we have traced the establishment of mental habits which dominate the future of the individual and either make or mar his usefulness. The value of a health service which will capitalize the possibilities of this period can only be estimated. Certain it is that in order to accomplish this we must do more than merely extend our infancy service upward or our school service downward. Careful consideration must be given to the special needs of this age level. The difficulties of securing an opportunity to reach the preschool child are very real ones to the field worker. We lack the organized approach of the school age and psychological appeal of the infant. We must build up widespread interest in the vital importance of good health supervision during this period while we are growing a generation of parents with a fine discrimination of relative health values. Preschool service merits a prominent place in our future health programs.

School Service—The development of health service in the schools has been one of the striking activities in the public health field during the last twenty-five years. It has been approached from every possible point of view and with a great variety of objectives. Large sums of money have been expended for medical and nursing services. Due to a lack of standards, it is most difficult to secure a true picture of the results obtained on a comparable basis. It is frankly disconcerting to hear an experienced worker like Dr. Josephine Baker say, "there is a remarkable uniformity in various communities as to the percentage of certain defects found year after year. A statement of actual examinations made and abnormal conditions found seems to be the objective of these reports." It raises the question whether we are getting true value for our expenditures—whether this continuous stream of defective children is to go on forever. Perhaps we are finding the answer in the newer phase of health promotion now being described under the general term of health education. Here we have, in many places, the corelation of the services of the educator, the physician, the nurse and parent; consideration of the child as a whole instead of in parts. It may be that in this field we have promise of the highest values in the maintenance of the health of the child, for here it should be possible to work out the methods for the solution of the technical problems involved and at the same time prepare a new generation of adults who will give public and personal health its proper evaluation in the whole scheme of life.

These, then, are some of the things which seem to be of certain relative value in the promotion of child health. However, running through them all is a tendency which may so seriously interfere with their effectiveness that it should be mentioned. I refer to our rapidly developing passion for numbers. We record with utmost care the number of pieces of literature we distribute, the number of children at our clinics, the number of nursing visits made, and so

on through a long list. It is realized that in certain stages of our development this may have been necessary and desirable; but the time has now come when we must turn from quantity to quality of service—when it is desirable to use the microscope instead of the telescope. For if we are to extend our services for the health of children we must accept the challenge of the committee of this Association and with scientific impartiality evaluate our work and retain only those activities which meet the test of proven results.

INDUSTRIAL MORBIDITY STATISTICS*

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IN JUNE, 1924, at the invitation of the Managing Director of the National Industrial Conference Board, a committee† was assembled to consider the development of a list of diseases and pathological conditions for use in connection with the study of industrial morbidity. This Committee entrusted to a Special Technical Committee the task of preparing a specific list, and on September 19 this Sub-Committee‡ submitted its report.

The list prepared by the Technical Committee, modified somewhat, has received the approval of the General Committee. It is presented for consideration, not as an ideal or as a perfect classification or list of diseases, but as a tentative proposal which, it is hoped, may be of some immediate use. It is suggested that critical comment concerning the proposed list be directed to the Chairman of the Committee, Mr. Edgar Sydenstricker, United States Public Health Service, Washington.

LIST OF PATHOLOGICAL CONDITIONS

Corresponding title numbers in parentheses from the International List of the Causes of Death. Third Revision, Paris, 1920.

I. EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES
1. Typhoid and paratyphoid fevers (1)
2. Malaria (5)
3. Influenza (11)
4. Other epidemic and endemic diseases (1–4, 6–10, 12–25)[a]
5. Tuberculosis—all forms
   a. Tuberculosis of the respiratory system (31)
   b. Other forms of tuberculosis (32–37)
6. Venereal diseases
   a. Syphilis
      1. Syphilis, so reported (38)
      2. Locomotor ataxia and general paralysis of the insane (72 and 76)
   b. Chancroid (39)
   c. Gonorrhea (all forms) (40)
7. Purulent infection, septicemia (41)[b]

* Presented to the Industrial Hygiene Section of the American Public Health Association, Detroit, Michigan, October 22, 1924.

† Consisting of: Dr. William H. Davis, Bureau of the Census, Washington; Dr. Louis I. Dublin, President, American Statistical Association; Dr. R. S. Quinby, American Assn. of Industrial Physicians and Surgeons, Watertown, Mass.; Dr. F. L. Rector, Conference Board of Physicians in Industry, New York, Secretary; Mr. Edgar Sydenstricker, U. S. Public Health Service, Washington, Chairman; Dr. Wade Wright, Section of Industrial Hygiene, American Public Health Assn.; Mr. Dean K. Brundage, U. S. Public Health Service, Washington; Mr. R. J. Vane, Metropolitan Life Insurance Co., New York; Mr. H. H. Dambmann, of the National Safety Council.

‡ Consisting of Mr. Dean K. Brundage, U. S. Public Health Service, Washington; Mr. J. O. Spain, Bureau of the Census, Washington; Mr. George Van Buren, Metropolitan Life Insurance Co., New York.

8. Other infectious diseases, exclusive of those under 4
   a. Anthrax (27)
   b. Other diseases in this group (26, 28–30, 42)[a]

II. GENERAL DISEASES NOT INCLUDED IN CLASS I

1. Cancer, all forms, and other malignant tumors, all sites (43–49)
2. Benign tumors (50)[c]
   a. Nonmalignant
   b. Unqualified
3. Rheumatism[d]
   a. Acute rheumatic fever (51)
   b. Chronic rheumatism, osteoarthritis, gout (52)
4. Alcoholism, acute or chronic (66)
5. Chronic poisoning
   a. Inorganic (67)
   b. Organic substances (68)[e]
6. Other general diseases (53–65, 69)[e]

III. DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE

1. Neuralgia, neuritis, hysteria (82)[f]
   a. Neuralgia
   b. Neuritis
   c. Sciatica
   d. Migraine
   e. Hysteria
   f. Others under this title
2. Other diseases of the nervous system
   a. Functional nervous disorders, such as neurasthenia, nervous prostration, nervousness, etc. (84)
   b. Others under this title (70, 71, 73–75, 77–81, 83)[g]
3. Diseases of the eye and annexa (85)
   a. Conjunctivitis
   b. Eyestrain
   c. Foreign body in the eye
   d. Others under this title[h]
4. Diseases of the ear (86a)
   a. Earache
   b. Otitis media
   c. Others under this title
5. Diseases of the mastoid process (86b)

IV. DISEASES OF THE CIRCULATORY SYSTEM

1. Diseases of the heart (87–90)
2. Diseases of the arteries (91)
   a. Arteriosclerosis (91b)
   b. Others under this title (91a and 91c)
3. Diseases of the veins (93)
   a. Hemorrhoids
   b. Phlebitis
   c. Varicose veins
   d. Others under this title
4. Diseases of the lymphatic system (94)
   a. Adenitis and swollen glands[i]
   b. Others under this title
5. Hemorrhage without specified cause (95)
   a. Epistaxis
   b. Others under this title
6. Other diseases of the circulatory system (92, 96)
   a. High blood pressure (96)
   b. Others under this title (92, 96)

V. DISEASES OF THE RESPIRATORY SYSTEM

1. Diseases of the nasal fossæ and their annexa (97)
   a. Coryza, rhinitis, and "cold" (unqualified)
   b. Sinusitis
   c. Others under this title
2. Diseases of the larynx (98)
   a. Laryngitis
   b. Others under this title
3. Bronchitis (99)
   a. Acute, excluding capillary bronchitis; see next subtitle)
   b. Chronic
   c. Unspecific

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a. Should any of the diseases included in this group indicate marked prevalence, they should be shown separately.

b. When not due to an accident.

c. This title does not include tumors of the female genital organs, tumor of brain, tumor of the thyroid gland, tumor of the prostate, etc. (See Tumor in Index of the Manual of the International List of Causes of Death, Third Revision, p. 292.)

d. Illnesses due to rheumatism are subdivided into acute and chronic, in accordance with the detailed International List of the Causes of Death. Probably so many cases will be reported as due to "rheumatism" without any qualification that it will be impracticable to determine which of the two conditions actually caused the illness; but inasmuch as acute rheumatic fever, a disease which has epidemic prevalence, differs so markedly from arthritis deformans, a disease of the joints of doubtful etiology which ordinarily pursues a chronic course, it is felt that the subdivision should be maintained, and an effort made to obtain the information necessary for the proper classification of rheumatism. If it is found to be impracticable in certain instances to obtain this information, it is recommended that rheumatism, unqualified, be placed in subdivision "a" (acute rheumatism) in accordance with the International List. This table does not include "muscular rheumatism."

e. Included under this title are all poisonings other than those of a sudden, accidental character. (See International Titles 177 and 181.) Should any of the diseases included in this group indicate marked prevalence, they should be shown separately.

4. Pneumonia—all forms (100, 101)
   a. Broncho-pneumonia, including capillary bronchitis (100)
   b. Lobar pneumonia (101a)
   c. Other forms of pneumonia, including pneumonia unspecified (101b)
5. Pleurisy (102)
6. Asthma (105)
7. Other diseases of the respiratory system (tuberculosis excepted)
   a. Pneumoconiosis (107a)[j]
   b. Cough (unqualified) (107c)
   c. Hay fever (107c)
   d. Others under this title (103, 104, 106, 107)

VI. DISEASES OF THE DIGESTIVE SYSTEM

1. Diseases of the mouth and annexa (108)
   a. Toothache (unqualified)
   b. Abscessed tooth
   c. Pyorrhea alveolaris
   d. Other conditions of the teeth or gums
   e. Canker of mouth (unqualified)
   f. Others under this title
2. Diseases of the pharynx and tonsils (109)
   a. Diseases of the pharynx
   b. Diseases of the tonsils
   c. Sore throat (unqualified)
   d. Streptococcic sore throat
   e. Others under this title
3. Diseases of the stomach (111, 112)
   a. Gastric and duodenal ulcer
   b. Gastritis
   c. Dyspepsia and indigestion (unqualified)
   d. Nervous indigestion
   e. Nausea, vomiting
   f. Stomach trouble (unqualified)
   g. Others under this title
4. Diarrhea and enteritis (114)
5. Appendicitis (117)
6. Hernia, intestinal obstruction (116)[k]
   a. Hernia
   b. Intestinal obstruction (organic obstructions only)
7. Other diseases of the intestines
   a. Constipation (119)
   b. Others under this title (110, 115, 116, 119)
8. Diseases of the liver and gall-bladder
   a. Jaundice (124)
   b. Cholecystitis (124)
   c. Gall-stones (123)
   d. Others under this title (120–124)
9. Peritonitis without specified cause (126)
10. Other diseases of the digestive system (125, 127)
    a. "Cramps"[l]
    b. Others under this title

VII. NONVENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA

1. Nephritis, acute and chronic
   a. Acute (128)
   b. Chronic, including unspecified (129)
2. Diseases of the bladder (133)
   a. Cystitis
   b. Others under this title
3. Nonpuerperal diseases of the female genital organs
   a. Menstrual disorders (140, 141)
   b. Others under this title (137–141)
4. Other nonvenereal diseases of the genito-urinary system and annexa (130–132, 134–136, 142)

VIII. THE PUERPERAL STATE (143–150)

IX. DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE

1. Furuncle (152)
2. Abscess, unqualified (153) but excluding[m]
3. Acne (154)

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f. Hysteria appears to be out of place in this title, but inasmuch as it is included with neuralgia and neuritis in the International List of the Causes of Death, it was deemed advisable to keep it in the same place in this list, and to show the number of such cases by providing substitute "e."

g. Titles 72 and 76 in the International List (locomotor ataxia, and general paralysis of the insane) should be added to title 38 (syphilis).

h. Should trachoma or certain other diseases of the eye show marked prevalence, subdivisions should be added for these diseases.

i. Include abscesses of the axilla, groin, cervical, and other lymphatic glands.

j. This includes fibrosis, silicosis and other changes produced by dust and other irritating agents.

k. When not due to an external cause.

l. A report of "cramps" in a male generally means, it is believed, some stomach or intestinal disturbance which rightly belongs under diseases of the digestive system instead of under convulsions, as given in the International List. In fatal cases, however, "cramps" should be allocated to the convulsions title. Cramps due to menstrual disorders should be classified under VII, 3, a.

m. Abscesses of the circulatory system (IV, 4, a), tuberculous abscesses, parasitic abscesses, nervous system and organs of special sense, respiratory system, digestive system, genitourinary, puerperal abscesses, and locomotive system.

n. Including debility, weakness, fatigue, overwork, general rundown condition and the like.

4. Dermatitis venenata (154)
5. Eczema (154)
6. Herpes zoster (154)
7. Impetigo contagiosa (154)
8. Pruritus (154)
9. Urticaria (154)
10. Ulcer, unqualified (154)
11. Others under this title (151, 153, 154)

X. DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION

1. Diseases of the bones (155)
2. Diseases of the joints (tuberculosis and rheumatism excepted) (156)
3. Other diseases of the organs of locomotion
   a. Bursitis (158)
   b. Flat-foot (158)
   c. Lumbago (158)
   d. Myalgia, including "stiff neck," etc. (158)
   e. Myositis (158)
   f. Others under this title (158)

(See note.)

XIV. EXTERNAL CAUSES

A. Accidents, occupational
   1. Accidental burns, conflagration (178, 179)
   2. Accidental asphyxiation by poisonous gas or vapor (181)
   3. Accidental cuts or punctured wounds (184)
   4. Accidental falls (185)
   5. Excessive cold (193)
   6. Excessive heat (194)
   7. Fractures, sprains, luxations (201)
   8. Other external causes
      a. Infected wound (202)
      b. All others (165–174, 177, 180, 182, 183, 186, 192, 195–200, 202)

B. Accidents, nonoccupational or unqualified
   1. Poisoning by food (175)
      a. Ptomain poisoning
      b. Others under this title
   2. Other acute accidental poisonings (gas excepted)
      a. Ivy poisoning (177)
      b. Others under this title (176, 177)
   3. Accidental burns, conflagration (178, 179)
   4. Accidental asphyxiation by poisonous gas or vapor (181)
   5. Accidental cuts or punctured wounds (184)
   6. Accidental fall (185)
   7. Excessive cold (193)
   8. Excessive heat (194)
   9. Fractures, sprains, luxations (201)
   10. Other external causes
      a. Infected wound (202)
      b. All other (165–174, 180, 182, 183, 186–192, 195–200, 202)

XV. ILL-DEFINED AND UNKNOWN CAUSES (205)

1. Headache
2. Exhaustion[n]
3. Backache
4. Biliousness
5. Fever
6. Fainting
7. Dizziness
8. Other ill-defined conditions
9. Cause unknown

XVI. ALL OTHER CAUSES (159–164)

NOTE.—Group XI and XII are omitted because they are diseases and conditions of no industrial importance. Group XIII is omitted because "old age" is rarely reported as a cause of disability on account of the fact that there are very few really old persons in industry. It is felt that senility could just as well be classified as "general debility" in the Ill-defined group.

VITAL STATISTICS FROM THE VIEW-POINT OF THE CLINICIAN*

EARL INGRAM CARR, M.D., F.A.C.S.
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VITAL STATISTICS have been defined as "relating to the life histories of communities or nations," and are tabulations of births, deaths, marriages and disease. With the exception of marriage, the original records have come to be provided, almost solely, by clinicians.

It seems fair to conclude, and it seems to be the common opinion, that the continuous recording of social history is a modern accomplishment. In 1532, weekly "Bills of mortality" were first compiled. Seven years later, the official registration of baptisms, marriages and deaths was begun in France, and early in the seventeenth century a similar registration was begun in Sweden. In 1662, Captain John Graunt published a book entitled, "Natural and Political Observations Mentioned in the Following Index and made upon the Bills of Mortality." This, probably marks the beginning of vital statistics.

Population counts have been made for many centuries. Heroditus speaks of Egypt's attempt to estimate her wealth and population in 3000 B.C. Moses undertook a census of the tribes of Israel. Greece and Rome reviewed resources in wealth and men many times.

The traditions of Aesculapius, the writings of Hippocrates, Celsus and others quite astonish us at their fund of medical knowledge, most certainly the accumulation of ages of experience. Rather recently, I spent considerable time endeavoring to estimate the status of surgery at different periods, especially ancient periods, and concluded, with quite acceptable proof, that surgery is a very ancient art; that the Hindus, Arabs and Egyptians did many operations that quite prevalently are believed to be accomplishments of our own generation. There are, too, many evidences in masonry and otherwise, that much was provided in sanitation. An example is the water filter on the Palatine Hill at Rome, that I viewed with Professor Tambolini, who told me that it was built about 900 B.C. Because of the accomplishments in the healing art and of the evidences of considerations for sanitation, I venture to say that we do not know how much consideration may have been given to generalization of disease and death at various early periods of civilization.

During the past year I was asked to comment upon that portion of a paper which pertained to longevity, and the consideration of this subject brings one to consider statistics. I desired authority and I went about in search of it. With the same statistics available, I found that scholars conclude variably. It makes a great difference whether mortality tables are used or whether life tables are used. It was necessary for me to abandon tables for my consideration and to analyze conclusions.

I said above that the clinician supplies original records. Being one, I feel that I may criticize physicians freely. The mistakes in reporting causes of death must be tremendous and, of course, not calculable. A great teaching hospital in this country, by a careful survey of records comparing antemortem and postmortem diagnoses, found astounding discrepancies. There was everything available in this institution in the way of diagnostic facilities. If so great discrepancies can

* Read before the Vital Statistics Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Mchigan, October 22, 1924.

occur under advantageous conditions, how much greater must they be under less advantageous facilities, as in outside or country practice.

Another serious difficulty in reducing errors in death reports to the minimum in practice in homes, in small, and even in medium sized hospitals, is the great lack of autopsies. This is due to many reasons, such as sentimental objections of relatives and friends, lack of coöperation on the part of hospitals, and rather often to the urgent rush or the indifference of the physician. The great work of hospital standardization by the American College of Surgeons is resulting in the rapid increase of autopsies.

Another class of errors may be illustrated by the following incident: While listening recently to a report of anaphylaxis from horse serum, the doctor next to me told me that he had lost a case suddenly from this cause. Thinking of this paper, I asked him what he put in the death certificate, and he said, "Pneumonia, that was what she had."

Varying conditions and changing modes of living must reflect in vital statistics. For instance, in this country in 1880, there were two families living in the country to one in the city. In 1917, the ratio was literally reversed, that is two families living in the city to one in the country. The more favorable means of travel have increased social intercourse and brought about contact of remote and distant regions.

In connection with comments on faulty reports on disease and causes of death, it is unfair to pass without announcing that it seems indisputable that the closer alliance of the various sciences, the clinical and X-ray laboratories, the rich accumulation of recorded clinical experience and the organization and standardization of both medical education and practice, must result in the greatest unity of judgment and diagnosis.

At any rate, the statistician must tabulate and deduct from clinical reports, and whether these reports are right or wrong, they are final, provided that a few prescribed regulations have been adhered to. It may be that many errors offset others so that the average surprisingly approaches correctness. The information thus provided is, as someone has aptly said, "the barometer of social pressure."

The value of vital statistics is so great that it is beyond the scope of a brief paper to include more on this phase of the subject than a generalization. I have chosen to divide values into two groups, economic and social, applying in the first group considerations in finance and industry, and in the second group individual and community conduct and relationships.

Economic Values: Of all great financial institutions, the one which is most basically dependent upon vital statistics is life insurance. Life insurance is a part of the business interests of most individuals of our country to-day; that is, directly or indirectly. We men insure our lives for the protection of those dependent upon us, and we are permitted principals and types of contracts based upon expectancy estimated from the experience of others who have gone before us. Out of this has grown, more or less recently, another use of life insurance—the protection of business. I am told that there are more than fifty Americans insured for $1,000,000 or more for the protection of their businesses or business interests.

Industrial liabilities caused by injuries to employes have, especially during the past one and one-half decades, received much attention and study. The various state workmen's compensation statutes have created the necessity of definite provisions by employers for the care and compensation of the injured. As a directing surgeon of a private clinic which takes care of thousands of industrial accidents, I have had the opportunity to observe that many of the accidents occur to the physically unfit, or to those who are not physically fit for the work assigned.

It has come about that medical surveys have been indicated in industry. Many

employers are coming to require physical examination of employes and filed records of the physical findings. In connection with examinations, advice is given which, in my observation, is commonly gratefully received. Many defects unknown to the employes are found, and many recommendations for known defects are offered. Advice and aid for the correction of defects or treatment of disease are provided to the mutual advantage of employer and employe. I know of one large manufacturer who, after instituting a medical survey, so reduced compensation expense that the bank account for this purpose accumulated a surplus in nine months of three times the cost of the survey.

The welfare and recreation provisions so general in business and industrial organizations, and their hospitals and sanitariums denote, not alone humanitarian concern, but a new, growing appreciation of the economic value of man.

Social or Clinical Values: From vital statistics, attention is directed along needed lines for propaganda and education. Among the most important of these are organized efforts to spread knowledge to mankind on the subjects of infant mortality, tuberculosis, dental prophylaxis, cancer, prenatal education and eugenics. All of these endeavors lead to a better appreciation of the greatest present opportunity in the healing art—preventive medicine.

To make possible greater practice in preventive medicine, the following must be of the most general concern: the conduct of and proper living for the expectant mother; how to keep the well baby well; modes of the spread of contagion; knowledge of the signs of incipient tuberculosis; recognition of precancer lesions and of the early signs of cancer. Such information brings greater happiness and increased longevity.

Vital statistics tables are probably not studied as generally as most statistical tables, but information therefrom does disseminate indirectly through the great propagandas. To reduce disease or death rate, it requires more than an educated profession. It requires an informed populace.

In conclusion, permit me to again call attention to the necessity for more numerous autopsies; to the fact that hospital standardization is the greatest control factor towards better practice; that the care of the injured, and medical surveys in industry are saving and prolonging life; that dissemination of health facts increases the opportunities for the practice of preventive medicine, and that all clinical activity is directed by past experience, statistically arranged.

I know I have not brought you anything that is new. I am fully aware that I have discussed your subject from the biased viewpoint of a practicing surgeon and fear that I have gone far afield.

DISCUSSION BY WILLIAM H. DAVIS, M.D., FELLOW A.P.H.A.

Dr. Carr's able paper clearly shows the present day limitations of vital statistics, and at the same time he emphasizes the point that vital statistics, even though not entirely satisfactory, are the essential foundation of facts which do and must constantly guide us in attempting to solve the health problems of the day.

Dr. Carr suggests that the foundation be improved by more autopsies, which will permit more accurate certification of causes of death by physicians. This certainly is a step in the right direction, a step which has, as you know, been strongly urged in recent years in the reports of the Accuracy Committee of this section. But, as Dr. Carr shows, poor certification is not entirely due to lack of diagnostic knowledge on the part of physicians, but is partially due to carelessness of physicians, or perhaps to lack of appreciation of the important uses to which death certificates are put in building the public health foundation.

As you doubtless know, the Bureau of the Census has in the last 14 years sent six editions of the Physicians' Pocket Reference

to physicians throughout the United States in a constant endeavor to secure better certification of causes of death by physicians, and it is certainly a pleasure to report that great progress has been made in this direction.

In one of our annual reports known as Mortality Statistics is a table showing the percentage of returns which had to be assigned to indefinite causes of death. Suffice it to say that the percentage is steadily decreasing year after year. For example, for Indiana the percentage of total deaths assigned to unknown or ill-defined diseases in 1900 was 6.1, but in 1922 it was only two-tenths of 1 per cent, and for Michigan in 1900 the percentage was 4.7, but in 1922 only seven-tenths of 1 per cent.

In the September issue of the JOURNAL I noticed the following:

"Health Education and Publicity, by Evart G. Routzahn"

"Three and a Half Pounds of Statistics—Or 774 pages of 'Mortality Statistics' (1921) have been received from the Bureau of the Census. What use shall we make of them? Is not this enormous volume of basic data a challenge to our imagination, ingenuity and skill?"

I would suggest the following as a few of the many "possible uses" of such material:

A foundation for a campaign to reduce the infant mortality of every community.

A foundation for campaigns to reduce the mortality from automobile accidents.

A foundation for campaigns to reduce the number of our young girls annually burned to death.

A foundation for campaigns to limit the sale of firearms and poisons.

And a foundation for campaigns to limit the spread of communicable diseases and to increase our knowledge of cancer.

These figures, which paint the passing of generation after generation, form the basis of intensive studies by children in the grammar schools, by children in the high schools, by young men and women in colleges, by professors in our universities, and by physicians and public health workers everywhere—all of them eager to know the facts and many of them devoting their lives to deriving from these facts important truths which will benefit mankind.

It may interest you to know that not long ago I made an estimate of the additional cost required to increase the mortality statistics to such an extent that investigators would be better able to find the information desired. This estimate was a conservative one and included only such tabulations as were regarded of real importance. But even this conservative estimate called for an additional outlay of $180,000 a year for the compilation in the Vital Statistics Division of the Bureau of the Census, and if the tabulations were all published called for over 6,000 pages instead of 774 found in the 1921 report. Or if you prefer an estimate in pounds, there would not be 3½ pounds, but 28 pounds annually.

Finally, the fact ought to be impressed upon every clinician that his duty as a physician does not end with the recovery or death of his patient. He still has a further duty, to record the facts carefully that his individual experience, either alone or as a part of cumulative experience, may point to the solution of a problem for the benefit of mankind.

MUNICIPAL HEALTH DEPARTMENT PRACTICE*

YOUR COMMITTEE on Municipal Health Department Practice was created four years ago with the conviction that the time had come for a concerted advance in the field of American municipal health service. The fundamental scientific and sociological bases of health department practice had become reasonably well established in their broader lines; and in almost every city special contributions of real, and sometimes of unique, value were being made to the technique of administrative method. Yet there was no central clearing house to facilitate the prompt interchange of information in regard to such pioneering efforts; there was no accepted basis for evaluating either the program or the performance of a health department as a whole; and there was no machinery representing organized professional opinion to which the individual health officer could turn for counsel and for practical support in the execution of his plans.

GENERAL OBJECTIVES

Your committee was created to fulfill this need. Its functions were obviously threefold. It was necessary to establish machinery for:

(a) The collection and filing of current and up-to-date information in regard to public health practices and procedures.

(b) The critical analysis and interpretation of the data thus obtained.

(c) The bringing to the individual health officer of the results of such analysis in the way most likely to be of immediate practical assistance to him in his official work.

In other words, the task of the committee was to apply in its special field, that of municipal health practice, the primary objectives of the American Public Health Association as a whole, as stated in the report of the Committee on Reorganization two years ago: "The preparation, study, standardization and presentation of scientific public health procedures."

THE COLLECTION OF INFORMATION IN REGARD TO HEALTH DEPARTMENT PRACTICE

The first definite step along this line was taken by your committee when, in 1921, it developed a carefully prepared schedule of information covering every phase of municipal health work, and through the generous financial assistance of the Metropolitan Life Insurance Company and the invaluable coöperation of the United States Public Health Service, set about obtaining the information called for in the schedule for eighty-three cities of the United States which had a population of approximately 100,000 or more. The information, thus obtained was systematically analyzed, and in 1923 was published by the Public Health Service *as Bulletin 136*. Copies of this bulletin were presented to the members of the Association last year at our meeting in Boston.

The United States Public Health Service seemed the logical body to continue in the future this task of collecting, and keeping up-to-date, current information in regard to public health procedures. We had the pleasure a year ago, in Boston, of reporting that, on the instance of your committee, Surgeon General Cumming had agreed to establish in the Public Health Service an Office of Administrative Health Practice, under the able

* Fourth Report of the Committee on Municipal Health Department Practice, presented to the Public Health Administ ation Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 21, 1924.

direction of Dr. Paul Preble, for the fulfillment of this function. During the current year Dr. Preble prepared a new and more elaborate schedule for the study of municipal health practice which was applied under his direction by officers of the Public Health Service to a second survey of public health procedures in one hundred cities of 70,000 population and over.

These surveys are all now in the hands of Surgeon Preble and are being carefully analyzed, and their important data tabulated and classified. This material will be published in a second bulletin dealing with city health practices as soon as the preparation of the information contained in the schedules has been completed. The committee is under heavy obligations to the Public Health Service for the work which Surgeon Preble is doing in keeping the studies of city health practices current.

In this connection, mention should be made of the fact that the American Child Health Association, having become interested in a similar study of municipal health activities, agreed, after conference with representatives of this committee, to include within their studies only cities with populations under 70,000 so that there would be no overlapping in work and no duplication of surveys of city health departments. The Child Health Association has made a study of some eighty-six cities in the United States with populations ranging between 40,000 and 70,000 during the last year and is now engaged in preparing its material for publication at an early date.

It will thus be seen that the collection of data in regard to city health procedures or practices has been developed to a highly satisfactory degree and that, through the creation of a special office within the United States Public Health Service, ideal machinery has been created for the carrying out of such work on a permanent basis in the future. For the transmission of this information to members of the American Public Health Association a special information service has been authorized by the Executive Board and will be developed in coöperation with this committee during the coming year.

THE EVALUATION OF PUBLIC HEALTH PROCEDURES

The basis for any sound public health program must necessarily be sought in a study of practical experience. The collection of raw data as to current practice is, however, only a first step. The data must be analyzed and critically evaluated if they are to prove of the maximum practical value.

It is sometimes, of course, the case that a health officer desires simply a piece of concrete information, such as the number of cities practicing terminal fumigation, or the practice of New York or Detroit in regard to the isolation of whooping cough. More often, however, the problems which come to us require the expression of some degree of critical judgment as to the relative value of this or that procedure and its relative importance in the general public health field. It is inevitable that any group or committee in a comparative study of city health work must set up in their own minds, if not on paper, certain ideals of service and ideas of values as between different classes of service. The advantage of committing these impressions to paper is that they may be reviewed, criticized and improved by the many who may be interested in the subject.

It is from this point of view that your committee presented in *Bulletin 136* a tentative plan for An Ideal Health Department for a City of 100,000 Population; and it is from this point of view that it hopes during the coming year, on the basis of the material collected by the United States Public Health Service and by the American Child Health Association, to prepare special monographic studies of what seems at the moment to be the best current practice in various special lines of administrative health work.

Above all, your committee, in its contact with the health officers who have called upon it for service, has been impressed by the need for a concise and clear form of evaluation for the activities of a municipal health department as a whole. In our report of a year ago we suggested that it might be helpful to award medals to certain cities of outstanding merit in community health service, as evidenced by their showing on a scoring plan to be devised by Dr. Rankin. This plan of awards was criticized in the subsequent discussion at the Boston meeting, and after obtaining by letter the opinion of the health officers of the 83 large cities the proposal was definitely abandoned. The preparation of an appraisal form for the use of the health officers and of our field agents in their service to the health officers is, however, meeting with general approval. Such a form is therefore receiving the careful consideration of the committee.

The aim in this appraisal form was to provide in the first place for an evaluation of the relative importance of various lines of public health activity, and in the second place for an estimate of the service actually rendered along each line of activity. The committee began the formulation of such an appraisal form in April, 1923, when it requested Dr. Charles V. Chapin, one of its members, to prepare for it a draft of a schedule which could be used for this purpose. Dr. Chapin complied with this request and, in the fall of 1923, the Field Director of the committee, Dr. Rankin, after making certain minor alterations in the tentative form that had been prepared, took the statement into the field, where he had the opportunity to confer with a number of individual health officers in regard to it and received from them many helpful criticisms and suggestions.

In his field conferences, the Field Director of the committee had the opportunity of presenting the subject of standards in municipal health department practice to two separate representative groups of city health officials. One was a group of health officials of New England cities, with which contact was made through their attendance upon the New England Health Institute which met in Boston early in May of this year. A second group contact was made possible through the interest of the State Health Commissioner of Ohio where, on account of a considerable number of large cities closely related geographically, it was convenient at the time and place of the meeting of the Ohio State Medical Society in Cleveland, the latter part of May, to discuss with a group of Ohio city health officers the question of the appraisal of city health work. A third group contact was effected through the interest of Dr. S. J. Crumbine, Director of Public Health Relations of the American Child Health Association, who interested the State Commissioner of Health of Michigan and, through Dr. Olin's coöperation, was able to present the matter to a group of twelve city health officers in that state. With all three groups a temporary organization was effected for the purpose of considering standards, and registering their opinions.

At this juncture, the Field Director, in his initial efforts looking toward a statement of standards for city health department practices, found a most helpful ally in the American Child Health Association. That Association, in traveling the same road over which the committee had previously passed, came, through the comparative studies of the health work in the eighty-six cities which it had surveyed and in the planning of its subsequent field service with these cities, to the same viewpoint held by our committee, that it would be desirable to crystallize its impressions of practices and values into a definite schedule of values and attainment. After two separate statements of standards, those of our Field Director and those of the American Child Health Association, had thus been independently formulated, it was realized by

the representatives of both organizations that the two statements should, if possible, be reconciled and consolidated. In conference between representatives of the two organizations, which lasted well over a week, the two tentative forms of appraisal for city health department practice were reduced to one. Subsequently, representatives of several of the other large voluntary organizations, such as the National Tuberculosis Association, the American Social Hygiene Association and the National Organization for Public Health Nursing, were conferred with and their criticisms and suggestions incorporated.

It next seemed desirable to the Field Director to test the proposed scheme by submitting it to a group of city health officers for tentative application in the appraisal of their own departments. To this end a committee of three members from each of the groups of city health officers that had been formed, one in New England, one in Ohio and one in Michigan, were called in to review the tentative statement of standards of values and attainments which had been prepared, and were asked to criticise it and amend it in such a way as to make it conform to their composite judgment and to meet their practical needs. The conference with the representatives from the three groups of city health officers continued for four days, August 18, 19, 20 and 21, and passed upon both the principles and the minutest details that had entered into the development of the tentative standards. It was understood on the adjournment of the conference of city health officers that the representatives would present the statement to their respective groups with a request that these thirty-six health officers accept it as it is for the present; that they apply it to an appraisal of the work of their own departments; that, after full consideration and trial, they name their representatives to meet with representatives from the other groups, now temporarily organized, and with those of several other groups that will be organized, for giving us further counsel.

The committee in no way expects to limit the criticism of the appraisal plan to the specific groups mentioned above, but invites all city health officers or other members of the Association to try out the form and give us the benefit of their counsel and advice.

The members of your committee are by no means all agreed that an acceptable form can ever be prepared. Certainly, the committee is not in position to approve such a form in detail at the present time. It does hope that a form that will meet with general approval can ultimately be adopted by the committee in the light of criticism obtained in the various ways enumerated.

We are convinced that an appraisal form, if it can be arrived at by the procedure here outlined, would prove of real value to the individual health officer in helping him to develop a balanced departmental program based upon relative values; to check up on the performance of his own bureaus and thus maintain the department at the highest point of efficiency; to defend himself when unjustly attacked, by showing that his department is organized in accord with the views of his professional colleagues; to secure funds for expansion by indicating where his organization falls short of that generally accepted as ideal; and to secure the coöperation of local voluntary health organizations along the most effective lines.

FIELD SERVICE FOR PRESENTATION OF STUDIES AND STANDARDS TO HEALTH OFFICERS

The first phase in the work of this committee was necessarily the collection of information in regard to city health department practice, the second phase the attempt to evaluate the information obtained, and the third phase, which has now been approached and already begun, is that of a field service that will make the results of its studies directly applicable

to city health work. During the first three years of the committee's work, the collecting of information naturally dominated the picture; during the last year the consideration of tentative appraisal standards was the outstanding feature; and, following this, the development of a practical, helpful field service will take the ascendency.

Even during the past year, however, the Field Director of the committee visited and conferred with the city health officials and others in nineteen cities, spending an average of three days in each city; by invitation he conferred with the health officers of two states with reference to their state problems, and on one occasion was called to advise a group of interested citizens and physicians with reference to the development of a county health department; he addressed nine national and state organizations of health officers in regard to the plans and work of the committee; spoke to nine local medical societies in regard to the relation of the medical profession and the public in health work, and also addressed ten luncheon clubs on the subject of public health—a total of twenty-five addresses.

Your committee has felt that the continuance and extension of its field service was of primary and fundamental importance, and therefore set itself very early in the present year to seek for the financial support necessary to carry out this plan. Since 1920 the funds at our disposal have been entirely contributed by the generosity of the Metropolitan Life Insurance Company. We felt it manifestly unfair to approach this company for further aid unless it could be shown that the tasks we had undertaken were of sufficient importance to appeal to other friends of the cause of public health. We are happy to report that the interest of the Milbank Memorial Fund has been enlisted in this activity of the American Public Health Association and, with its support, we again approached the Metropolitan Life Insurance Company which has agreed to appropriate $10,000 for our work during the year 1925, a similar sum being contributed by the Milbank Fund.

With this financial support it will be possible during the coming year, not only to retain the services of Dr. Rankin as Field Director, but to provide him with competent assistance sufficient to enlarge materially the scope and volume of his work. Furthermore, the service which can be rendered to members of the American Public Health Association along this line will be further extended by an agreement which has been reached with certain of the great national voluntary health agencies represented in the National Health Council, under which field representatives of these organizations will be available as consultants on special phases of health administration such as tuberculosis, child hygiene or public health nursing for those health officers who may desire their aid, in exchange for similar services rendered by Dr. Rankin and his staff to the organizations in question.

Your committee believes that the possibilities of this field service, under such direction as that of Dr. Rankin, are very large. The extent to which it develops will depend on the extent to which the individual members of this section call upon it in the future. Your committee is reasonably confident that, if your demands exceed the capacity of the staff available, more funds can be found for expansion when they are needed.

If you desire to know what other health officers are doing and how that knowledge can be applied to your local conditions; if you wish the effective support of professional opinion in securing needed local developments, the field staff of the committee is at your service. This committee is your committee, directly responsible to this Association of professional health workers. The upbuilding of the public health service of this country along the lines of sound and enlightened progress is primarily the problem of the

professional public health workers themselves. It is a legitimate source of pride and satisfaction that the lead in the solution of this problem has been undertaken by the body to which it logically belongs—the American Public Health Association.

C.-E. A. WINSLOW, *Chairman.*

BATHING PLACES*

YOUR COMMITTEE presents herewith its sixth annual report for consideration. At the outset, it is well to state that each year the committee is able to report that a broader, deeper interest is being manifested throughout the country in the work of bathing place sanitation. Not only are the states developing new or modified regulations, but additional medical and nonmedical associations are appointing committees to coöperate with yours. During the past year the Association of Laboratory Division of the Southern States appointed a committee to give this subject further thought. That such a healthy, intense interest is being developed is very encouraging.

During the year just closing the work of the committee has been of a general, more than a specific, character. The reports presented at previous sessions of the section have stimulated discussion and thought into diverse channels, to such an extent that the committee did not feel justified in launching into new realms until the ground already covered had been more fully treated. Therefore, this report is of a general nature.

The 1923 report at Boston submitted a tentative schedule of standards for bathing place operation and control. The wholesome discussion following the presentation of that report gave the committee suggestions for advance thought. At that time criticism centered largely around the bacterial standards presented. Our committee has furnished copies of the tentative standards to many operators in the several states, in fact, has given them anywhere a trial would be assured. The committee has felt it unwise to attempt to collect and summarize the results of these studies until ample opportunity has been afforded the various operators to give the standards a thorough tryout.

The committee has discussed, at intervals, the relative significance of the bacterial count or standard as it relates to bathing places and are now about of this opinion—that while bacterial counts or B. Coli index are not directly indicative of the safety of a swimming pool water, they are at least indices of water cleanliness and age, and therefore have considerable value in the absence of any other better means of determining cleanliness and safety.

The committee has been discussing many phases of the bathing place problem during the past year, largely because of discussion and wholesome criticism following the presentation of the 1923 report. However, work of the committee this year has not advanced sufficiently to justify any definite opinions or statements at this time.

The committee is endeavoring to correlate the bacterial and physical or environmental standards into a practical working "code" which ultimately can be used by the several states in formulating their own local rules and regulations. To complete this task will consume at least another year.

During the year several operators employing the tentative standards have encountered generalities which require closer definition; consequently some of the sections are undergoing dissection. Feeling that the subjects of "Bathing Load," "Crowding," and "Disinfection" need further study, the committee has undertaken research to correlate these subjects, and further adjust or modify the standards so that with slight modifications they will be applicable to either indoor or outdoor pools.

It is well to take cognizance of the work already done by the otologists who have been giving the subject thought, and the committee believes that all engaged in public health endeavor should advocate as educational material simple precautions as pronounced by Dr.

* Progress Report of the Committee on Bathing Places, presented to the Sanitary Engineering Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 29, 1924.

Taylor of the American Medical Association. The committee urges, in the absence of and until the same are available in a more tangible form, standards that the following precautions which if observed by the bathers will in the long run tend to lower the incidence of bathing place infections:

1. Maintenance of a clean environment.
2. Attempt to control the bathers' movements.
3. Advocate the use of bathing caps.
4. Advise against the long immersion and bathing period.
5. Advise against use of pool when sick or infected.

The committee in conclusion urges all energies and agencies to continue their studies and observations so that as time passes we will learn more.

GEORGE W. SIMONS, JR., *Chairman.*

TECHNICAL COMMITTEES AND THEIR OPPORTUNITIES*

W. D. BIGELOW, PH.D., FELLOW A.P.H.A.

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IS THE Food and Drugs Section performing its proper functions? filling its proper place? During the last year, I have given much thought to this subject, and have discussed it with others who take an active part in the work of the section. I am convinced that we are not living up to our opportunities.

Our membership is small, and does not include an adequate representation of the scientific men of the country who might be interested in its work. Many excellent papers are read at our meetings, and our technical committees have worked faithfully and to good advantage. The fact remains, however, that there is much research work done in the United States which has a public health bearing that is never developed, and that might be developed here, under proper conditions.

In the United States, there are numerous organizations which meet at least once a year, and whose programs include papers dealing with the production or the examination of food and drugs, or with the control of the purity and quality of food and drugs. I have not attempted a complete list of these organizations, but the following will illustrate their number and diversity:

Association of Official Agricultural Chemists
Association of American Dairy, Food and Drug Officials
American Chemical Society
American Society of Biological Chemists
American Society for Pharmacology and Experimental Therapeutics
American Dairy Science Association
International Association of Dairy and Milk Inspectors
Society of American Bacteriologists
American Child Health Association
American Dietetic Association
American Home Economics Association
American Pharmaceutical Association
Council of Pharmacy and Chemistry of American Medical Association

To this list might be added medical societies—national, state, and local—and other organizations devoted to hygiene and public health. At all meetings of such organizations, papers are presented dealing with some questions relating to food and drugs. These papers are of the most diversified nature, and are written from many standpoints. They may treat of the manufacture or production of food

* Address of the Chairman of the Food and Drugs Section of the American Public Health Association, at the Fifty-third Annual Meeting at Detroit, Michigan, October 20, 1924.

or drugs, of their composition, nutritive value, or of methods for their analysis. They may discuss deterioration on storage, or questions regarding the enforcement of regulatory laws. Whatever their nature, they always represent thought and study. They usually represent experience, and often give the results of valuable research.

Almost invariably, the writers of such papers are interested in questions of public health. Usually, however, they are occupied with food or drugs from some other standpoint. The journals in which the articles are published usually do not deal with questions of public health, and the writers have not the incentive to develop and record ideas which naturally occur to them with relation to the subject of public health.

This section should be the common meeting ground of all such workers. They should be encouraged to develop their ideas regarding public health and bring them here for discussion. Many of them are doubtless so fully occupied that they could not increase their activities. I am convinced, however, that many of them could profitably take the time to attend our meetings, and take an active part in our work.

Under these circumstances, we should survey our scope and the nature of our activities, with a view to determining whether some change in our organization may not be advantageously made.

The activities of the section are naturally centered about the work and reports of our technical committees. In 1917 committees were appointed on the following subjects:

Cold Storage
Relation of Food to Disease
Nutritional Problems
Problems of Canning
Habit Forming Drugs
Drugs and Nostrums
Municipal Food Administration
Conservation and Development of Food Supplies
Preparation, Packing, and Transportation of Foods
Control of Milk and Dairy Products (The latter to coöperate with the Milk Committee of the Laboratory Section)
Retail Distribution and Marketing of Foods
Meat Inspection

From year to year the list of committees has been changed.

Of the twelve committees mentioned above, four remain unchanged; one has been continued with a change of scope; two have been combined into a single committee with greater scope than that of the two original committees; five of the committees were not reappointed for the present year, and one new committee has been added. As a result of these changes, the committees acting during the present year are as follows:

1. Distribution, Preparation, and Marketing of Foods.
2. Problems of Canning.
3. Cold Storage.
4. Habit Forming Drugs.
5. Control of Meat, Milk, and Other Dairy Products.
6. Nutritional Problems.
7. Propaganda.

These changes in the character and scope of the committees were doubtless occasioned partly by changing conditions, and partly by the fact that their reports in previous years were adequate, at least for the time being. The committees have done good work, and their reports, in the main, were timely and valuable.

When we study these reports, however, we are impressed with the fact that the present organization and scope of our committees is not adapted for permanent use. Some of these committees have probably fulfilled their usefulness by bringing to our attention a résumé of the state of our knowledge regarding the subjects they have treated. Some of them

seem to be holding off from fundamental problems of their respective fields because there is apparently a duplication of their activity. For instance, the committees on Cold Storage; the Relation of Food to Disease; Preparation, Packing, and Transportation of Food; and Problems of Canning, are all fundamentally interested in the sorting of the raw product and the condition of its shipment; yet none of them has taken these questions up, probably because they were common ground.

It appears probable that our committees would be of more permanent value and that we would be able to enlist the coöperation of workers who are not now in the Association, if a thorough reorganization of our committees, and a definition of their scope, could be effected. In this reorganization it would be well to make an exception of the Committee on Nutritional Problems because that committee has done exceptionally good work and has given each year a masterly report embracing a brief and consistent statement of our knowledge regarding some phase of its problem. The work of this committee is valuable, and should be continued.

In general, however, I would recommend that the committees be assigned to certain classes of products. Our typical foods might then be divided into several groups, according to the nature of the raw products and the character of deterioration to which they are subject, and a committee appointed for each group. This would define the scope of each committee clearly, and would simplify its work.

For instance, committees might be appointed to study the following subjects, and subcommittees or additional committees appointed as found expedient:

1. Beverages.
2. Fruits, Vegetables, and their Products.
3. Dairy Products and Eggs.
4. Meat, Fish, and Shellfish.
5. Drugs and Pharmaceuticals.
6. Nutritional Problems.

Each of these committees should consider all problems relating to its subject which may have any bearing on public health. It should therefore be interested in the handling of the raw product; its transportation to the fresh food market, the cold storage warehouse, or the factory for manufacture into prepared food; and all conditions relating to the transportation, storage, and sale of raw and manufactured products, as far as those conditions may have a bearing on public health.

I recommend that our Council and technical committees give careful attention to the practicability of establishing and maintaining systematic contacts with such organizations as those mentioned above. The members of our technical committees may well be selected with that in view.

I recommend to the Section on Food and Drugs the serious consideration of these suggestions, and to that end, advise that a committee be appointed to study the matter and report at to-morrow's session.

INCINERATOR SPECIFICATIONS AND CONTRACT TESTS

A SYMPOSIUM *

THE ATTENTION of your committee during the past year has been centered in the possibility of framing general specifications together with contract guarantee and test requirements for incinerators. This temporary delimitation of the possible field of work for the committee was suggested by one of its members, C. M. Baker.

Opinions on the subject were requested from members of the committee and other sanitary engineers, either in private practice or municipal employ. The results of the inquiry, assembled by the chairman of the committee, are here presented as a symposium. By way of general summary, the chairman feels warranted in drawing the conclusion that although some members of the committee and a considerable number of the other engineers interrogated seriously question the possibility of what is commonly known as a standard specification—owing largely to variations in conditions to be met in various localities and to the general state of the art—yet the consensus of opinion seems to be that something of the kind would be useful, and to warrant the hope that at least a general outline for model incinerator specifications and contract tests could be formulated. The symposium is submitted to the Sanitary Engineering Section for additional discussion and, if considered desirable, an expression of the wishes of the section as to further action by the committee.

M. N. BAKER, *Chairman.*

* Report of the Committee on Refuse Collection and Disposal, presented to the Sanitary Engineering Section of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 23, 1924.

OPINIONS FROM COMMITTEE MEMBERS

C. M. Baker—I of course realize that each question is usually a problem in itself, the solution of which depends largely upon local conditions. Nevertheless, I believe that certain definite general standards should be adopted that would be of material assistance and guidance to municipalities in adopting plans for garbage and refuse disposal.

It some cases, particularly for smaller municipalities, where conditions are not favorable to sanitary fills and where reduction would not be practicable, incineration is probably applicable. Standard specifications for incinerators would, therefore, be of material value to these communities. I do not mean detailed specifications, but other simple general specifications, together with an outline of standard tests, the whole designed more particularly to meet the needs of the smaller municipalities.

There is probably no other branch of sanitary engineering that is in such a chaotic condition as that of garbage and refuse disposal. As you have pointed out, it has been a political football in practically every municipality; but is not this because engineers have not specifically and forcefully pointed it out as an engineering problem? Would not standard requirements, officially adopted by the A.P.H.A., give the engineer an official standing in this field?

M. N. Baker—I have long been impressed with the loose character of most incinerator specifications, contract guarantees and acceptance test requirements. I think every city should employ a competent engineer to design proposed garbage and refuse disposal plants of

whatever type, to draw specifications and contract forms and to supervise and report on acceptance tests. Where it is thought desirable to permit contractors—whether manufacturers or general contractors—to submit their own detailed plans, specifications and guarantees, it is essential, if the bids are to be comparable, that they conform to a general scheme of requirements. Such a general scheme would also be helpful even where an engineer is engaged to draw detailed plans and specifications.

Samuel A. Greeley—1. Plans for incinerators have so far been developed largely as patented processes in the hands of certain manufacturers and promoters, and there has been little basis for defining the work to be done in specifications. In this way the first step in the development has been the actual purchase of incinerators under guarantees, and advertisements for bids have stated only the capacity desired and, in some cases, the height of the chimney. Manufacturers have offered their own guarantees.

2. As a second step, cities undertook to get bids on a somewhat more comparable basis by outlining a uniform guarantee on which all manufacturers should bid, including also specifications of the materials to be used, together, in some cases, with a general outline plan. This has perhaps been the usual method in the larger projects.

3. A development of recent years has been for the city to buy the rights to a certain type of incinerator which, after due consideration, has been selected as the best, and then to secure from the manufacturer plans and specifications on which competitive bids can be taken for erection. This, I understand, was done at New Orleans. I think New York has recently purchased incinerators without competitive bids, or with competitive bids much as might be done in buying a boiler or a chimney. All other parts of the plant were built under competitive bids based on plans and specifications prepared by the city's engineers. This relegates the incinerator to its proper importance in the plant as a whole and perhaps might reduce the temptation for political interference. Under this method, more disinterested engineering effort is permissible than under (1) and (2).

4. A further movement, not yet far advanced in this country, is preparation by the city's engineers of plans and specifications for the entire project, followed by taking bids for construction. I think this has been done in Germany in some of the larger installations.

It seems to me that there is some analogy between this situation and that of the development of water filtration plants. A number of years ago, filter plant installation was in the hands of manufacturers and promoters having patented devices, and plants were sold with little engineering competition, and in some cases under guarantees, some of which I think were rather absurd. Later on, engineers began to make detailed designs for all parts of the filter plant except the filter equipment. Now it is the practice to make detailed designs for all parts so that any competent contractor can figure. This at least is our practice so far as the strainer system, pipe gallery, and the like are concerned. We do not detail the rate controllers or loss-of-head gages, but buy them much as we would also buy the hardware, cement and other standard products. I think very much better filter plant design has resulted from this practice.

I do not know that we are ready at the present time to go much beyond (1) above; but I think a furnace type might be selected with less controversy than the selection of an entire plant. The cost of the furnace would be not much over a third of that of the entire plant. It might be possible in this way to make up a general outline plan and specification and ask for proposals of type of furnace with only an indication as to cost. An engineer could then select the type of furnace and prepare plans and

specifications for the entire project on which bids for construction could be taken.

It does not seem to me that a standard specification can be worked out because after all it is the element of judgment based on experience that is mainly needed and a standard specification would discourage rather than promote this.

It should not be difficult to get together an outline of garbage plant specifications, including guarantees and tests, and in the present stage of development this would probably be very helpful. In a way it does not get at the root of the matter, which comes down to items of plant location, general arrangement of buildings and detailed designs of furnace work. Perhaps some general recommendations on methods of procedure with reference to engineering work would be helpful along this line.

C. A. Holmquist—It appears to me that it would be impracticable, if not impossible, for our committee in one year to go into the entire question of collection and disposal of refuse in detail, and that it would be advisable to confine ourselves to one subject, such as that suggested by Mr. Baker of Wisconsin—developing standard specifications for incinerators, which could probably be done in one or at most two years. On the other hand, it might be as valuable to cover in general the collection and disposal of refuse and garbage for smaller communities, say less than 25,000, pointing out the advantages and disadvantages of various systems of collection and disposal.

I. S. Osborn—With the large number of different opinions in connection with incinerator work, no doubt any specifications which were prepared by the committee would necessarily be more or less general. The conditions vary in cities as to the quality and quantity of refuse to be incinerated, so that a furnace designed to meet one set of conditions might be undesirable under another.

If the committee can outline general policies to be followed whereby the municipal official will be somewhat safeguarded and assured of securing equipment that will satisfactorily meet these conditions, it would be well worth while.

In many cases I have found that specifications did not have much bearing on the final selection, as the decision often rests with a council committee, the members of which become (to their way of thinking) well educated in furnace designs, or with the salesman who is the most adept in presenting his proposition or has done the most extensive preliminary work through political influence previous to the preparing of specifications and the awarding of contract.

OPINIONS FROM OTHER SANITARY ENGINEERS

F. A. Barbour—In my opinion it might be possible to develop a specification—largely general in its requirements, but with more or less particular definition of certain necessary phases—which would serve a good purpose. It would, in my judgment, be impossible to prepare standard specifications to cover all necessary requirements in any particular case; there would be danger that municipalities would accept such standard specifications as sufficient without adaptation to local conditions by a competent engineer.

Specifications defining the character of the refuse to be burned; requiring a guarantee of performance based on the consumption of so many units of fuel per ton of refuse burned to satisfactory ash; with a test extending over a sufficient length of time to express the results, might be productive of good. A further guarantee of the labor hours required per ton of refuse, and a requirement that the contractor shall be responsible for any parts shown to be defective within a period of six months, with a retention of a small percentage of the contract price, might also be of value.

In brief, it would be my idea that the contract form should be similar to that used in contracts for pumping machinery—setting forth general requirements,

stipulating the fulfilment of certain guaranteed efficiencies and economics, and allowing the contractor under these general requirements to submit his own detailed specifications, which would be made part of the contract with the successful bidder.

Harrison P. Eddy—It is my opinion that general specifications can properly be prepared.

Guy C. Emerson—My first thoughts are that it is a matter of rather doubtful feasibility.

George W. Fuller—I doubt if your committee could materially advance municipal sanitation by going into this technical phase of garbage disposal. The effort would be misunderstood and abused, I am afraid, by nontechnical officials and would perhaps hinder technical advisers of municipalities who would naturally desire to fit their specifications to local conditions, which vary materially from place to place.

Professor John H. Gregory—I think it would be highly desirable if such a specification could be prepared, but I feel that it might be difficult. For example, is the incinerator to burn mixed refuse, and if so, what percentage of ashes? or is it to burn a mixture of garbage and rubbish, either wrapped or unwrapped? How is the material to be charged into the furnaces? and how would you prepare a standard specification which would permit of competitive bidding on the ..... incinerator such as was installed at ..... and also on a ..... incinerator? I raise these questions merely to show that a standard specification might require a number of alternative paragraphs to meet local conditions. I think it would be well worth while for your committee to attempt a tentative specification.

T. Chalkley Hatton—For many years I have felt that the collection and disposal of garbage, especially the latter, is as much an engineering problem as is the disposal of sewage, and one which should not continue in the hands of the promoter, who has made such a mess of it. Garbage, like sewage, is complex in character and its character should be studied scientifically to the end that the proper type of apparatus for its successful disposition may be designed and properly operated. To obtain this result the services of both the engineer and chemist must be employed where neither is looking for special monetary considerations.

Whether the solution of the problem is sufficiently advanced to warrant a committee of sanitary engineers to prepare general specifications covering design, construction and guarantees is a matter for your committee to determine. My own opinion is that it is not, and therefore that such an attempt would not have the influence on the art that your committee desires.

I suggest that the committee might well collect and publish in a comprehensive and readable form the existing reliable data on garbage disposal, sparing nobody, no type or process in such a publication; to the end, first, that the public may be informed of the state of the art, and secondly, that by thus educating the public a change of attitude may occur which will result in calling in the services of the engineer and chemist. Then, and then only, can proper specifications and designs be formulated.

J. A. Jensen—I believe that such specifications would be helpful owing to the lack in many cases of efficient supervision, but such specifications should generously recognize the various successful types of incinerators. I believe the design should be in accord with sound mechanical principles and that approved material should be used for construction. The tests should take into account the varying grades of refuse met with in different places—a matter that is usually lost sight of.

M. M. O'Shaughnessy—The condition of garbage disposal plants in our large cities is a disgrace and a reflection on the engineering profession, which should

have the matter in charge. Immense sums of money have been invested in fake incinerators including expensive machinery which is never used or fails to function. Witness the suspension of incinerators or garbage reduction plants in Seattle, Savannah, San Francisco, Los Angeles and New York. Think of the crime of dumping garbage from New York in the ocean and polluting all the beaches up and down the shore line! I believe by collaboration of engineering talent, incinerator specifications could be drawn which would serve as a standard for the city engineers of our large cities.

Steuart Purcell—I believe it is both practicable and desirable that standard specifications be drafted for this purpose, as they would be a most valuable guide to municipal engineers, even though it might be necessary to modify them considerably to fit local conditions.

Standard specifications drafted by a committee like yours would undoubtedly prevent the ill-advised expenditure of large sums of money—of which there are many instances—on the construction of plants which prove to be failures and are soon abandoned or operated with very unsatisfactory results and at great economic loss.

TEACHING CHILDREN TO LIKE WHOLESOME FOODS*

LYDIA J. ROBERTS

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THE PROBLEM of teaching children to eat and to like wholesome foods presents two different aspects: (1) The development of right food tastes and habits in a child with whom one may begin at the beginning—at birth; and (2) the reëducation of the child who has not been started right, but has formed dislikes and prejudices which must be overcome and new tastes formed.

The first is the logical and the simpler method, for a child is born without habits and one may develop his food tastes almost at will, provided one has a clear ideal of what are desirable habits; understands how to develop them; and is consistent in carrying out his program. When parents are so trained as to be able to accomplish this the finicky child will have practically disappeared.

The majority of children unfortunately belong to the second group, and it is with these that public health workers must for the most part deal. They can and should do their part in trying to start the next generation of children in the right way; but their task will for some time be largely one of salvaging those who have not had the right beginning. It is this problem of the child who has been started wrong which will be chiefly considered in this connection.

For this task of reëducation the help of some agency outside the home is almost essential. While it is possible for parents who have learned too late what they should have done to start over and reform a child's food tastes, it is an exceedingly difficult task and is rarely accomplished without assistance; and this is where the outside agency can render valuable aid.

The reëducation is more easily accomplished in a group—in the school, the clinic, the Scout group, or wherever children can be met weekly or oftener in classes to be instructed by one well qualified in subject matter and in child psychology to do the task.

* Abstract of paper read before the Joint Session of the Child Hygiene and Food and Drugs Sections of the American Public Health Association at the Fifty-third Annual Meeting at Detroit, Michigan, October 22, 1924.

An ideal program includes: (1) A weekly health class; (2) a meal eaten together; and (3) the keeping of records showing the extent to which the individuals live up to the lessons taught. With such conditions the development of right tastes is easily accomplished. To a parent whose child comes home at night liking and demanding a food he had disliked and scornfully refused in the morning the change indeed seems nothing short of miraculous.

The success of the class method in instilling likes for foods depends on several important factors:

1. Children are taught reasons for eating foods which appeal to their intelligence as sound.

2. They are thus furnished with a compelling motive for learning to like the food in question. They really desire the physical qualities which that food can help to produce. Milk, eggs and vegetables become, therefore, tangible means of helping them to attain the desired ends.

3. The psychology of the group is the most important factor. When the group together learn the real value of a food and decide to eat it, it suddenly becomes popular to like that food. With a changed attitude toward a food and a real desire to like it, the learning to like it offers little difficulty.

4. The eating of the food together after the lesson is likewise a decided help. The first taste is taken with the new attitude gained from the lesson and with the teacher and the rest of the group looking on to see how many can say they like it, and approving those who do. Liking the food under such conditions is the natural result, especially when—as is very often the case—the child had never before even tasted it and had therefore no real dislike.

5. The idea of being able to go home and astonish his parents by asking for a food which he has formerly refused strongly appeals to the ordinary child as great fun. Having once gone on record as liking a food he usually lives up to his claims by eating it, and eventually does like it whether or not he really did at first.

The effect of one lesson and lunch may not, of course, be permanent. The biggest part is done, however, when the child's attitude is changed and he at least temporarily desires the food. If this attitude is maintained by some form of record keeping and the group spirit continues to make it popular to like it, a genuine liking will eventually be established.

Preschool children cannot, of course, be taught the lessons, but they can be greatly influenced in their eating habits through the meal eaten together. The judgment of the group is a compelling influence in food education of even the babies in the nursery school.

THE IMPORTANT PART OF PARENTS

Although the group method with all ages will often accomplish much, even with feeble home coöperation or none at all, yet better and more lasting results are afforded when the home does its part. If the outside agency has done the thing the home was unable to do—change the child's entire attitude—then the home should coöperate by (1) showing proper interest in the work, (2) by providing the foods so that it is possible for the child to live up to the requirements of class teachings, and (3) by taking advantage of the child's improved attitude to set things right which have been wrong in the parents' management. The chief ways most parents need to reform are:

1. To cease talking of children's dislikes and to begin to take pride in their likes; to look forward to the day when they can say with pride, "My child likes everything."

2. To set the right example by themselves liking and eating all wholesome foods.

3. To stop nagging and fussing over children about their food. To have rather the attitude of assuming that of course all the family like and eat all that is set before them.

Given the outside assistance in changing the child's attitude, together with this wiser management on the part of parents, there is scarcely a limit to what may be accomplished in the way of breaking down food prejudices and establishing normal dietary responses.

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RURAL SANITATION

WITH THE increased and increasing complexities of modern life, general progress in sanitation is essential to safe and wholesome living. The health conditions of our rural districts and those of our cities obviously react upon one another. Sanitation of either our rural or urban districts is, therefore, of importance to our whole population.

With present facilities for transportation and travel, few communities within our vast expanse of country can properly be denominated as "isolated" or "remote." Railways, improved wagon roads, automobiles, and aeroplanes have made distances of several hundred miles little or nothing between friends and between business associates. The residents of any of our largest cities are exposed more or less at practically every meal to whatever insanitary conditions obtain on the hundreds of farms from which the city's food supplies are derived. Scores of thousands of our rural homes are visited every day by persons who reside in cities. Some of the visitors are "carriers" of typhoid, diphtheria, or other infection. At a large proportion of our rural homes conditions are such as to make probable the spread of infection introduced on the place by a "carrier." The spread may be limited to the rural community, but the infection is likely to find its way into milk or some other food, and therein, in concentration or after multiplication, be returned to the city.

In our large cities generally, striking sanitary progress has been made within the last twenty-five years. Along with this sanitary progress and largely as a result of it, there has been a marked reduction in our urban sickness and death rates from the filth-borne diseases. Certain diseases, such as typhoid fever, dysentery, malaria, and hookworm are, notwithstanding the fact that they are communicable directly or indirectly from person to person, less prevalent in our average large crowded urban centre than in our small cities, towns, villages, and strictly rural districts generally.

In our rural districts, comprising nearly half of our total population and furnishing most of our food and clothing supplies, sanitary progress has as yet been remarkably slow, and such as has been made has been in spots too few and too far between. According to all the evidence at hand, not more than three per cent of

the twelve million or so rural homes in the United States could now be given, after careful and competent inspection, a clean bill of health on the most salient features of sanitation. Such a situation is serious—serious from the standpoint of the individual, the local community, the state, and the nation—and deserving of the foremost attention of the local, state, and the federal governments. Sanitary improvements can be accomplished at a cost much less than the money loss which inevitably will result from their continued neglect. Thus, sanitation furnishes one of the least expensive and most profitable forms of insurance. Lack of progress in rural sanitation is not due to a lack of interest among our rural dwellers in their own welfare. It must be due, therefore, to a lack of information about the practicability and importance of sanitary measures. Extensive and intensive sanitary education, obviously, is essential to progress in rural sanitation.

The rural sanitation business is like any other business in that it will not run itself. Some one must be on the job whose particular and exclusive business is to look after it conscientiously, diligently, and constantly. Wherever the work has been looked after in a business-like way, the progress has been good. This is both encouraging and significant.

Agencies such as the United States Public Health Service, the International Health Board, and many of our state boards of health, which have had the most extensive and intensive experience in our rural health field, have concluded that lasting progress in rural sanitation may be secured most economically and effectively through the development and maintenance of reasonably adequate local health service to carry out, under the direction of whole-time local (usually county) health officers, a well rounded, comprehensive program of health work including sanitation. These agencies are coöperating with local governmental authorities along this line. Only about twelve per cent of our rural population as yet, however, have been provided with health service approaching adequacy.

In view of the importance of rural sanitation from an interstate or a national standpoint, it is remarkable that of the billions of dollars appropriated by Congress for each of the last several fiscal years, only $50,000 has been appropriated for the rural sanitation work of the Public Health Service. This item was increased to $74,300 for the present fiscal year. Any increase is, of course, encouraging, but this increased amount is far below the federal government's due financial part in this important business.

In the last part of the last session of Congress, a bill (H. R. 8866) was introduced which, if enacted, would enable the federal government to meet its opportunity and responsibility in rural health work to a reasonably adequate degree. This bill, however, upon reference in the usual course by the House Committee to the Executive Department for comment, was pronounced by the Director of the Budget, after what must have been a cursory examination, as being "in conflict with the President's financial policy." Our state legislatures generally are nearly as "conservative" as Congress in appropriating for health work.

Cutting down and keeping down government expenses has a strong appeal for most of us; but more liberal investment for rural health work would, according to all the evidence, result in a large net saving to the people and thereby be in the interest of true economy. There appears at least as much reason for the federal and the state government to assist farming communities in carrying out common-sense, economical, and effective measures for the protection and promotion of human health and for the conservation of human life as to assist them in the raising and marketing of crops of wheat, corn, and cotton, and in the construction of improved roads and waterways.

BOOK REVIEWS

WHAT SHOULD be the character of a book review? By whom should book reviews be made? The answers to both of these questions seem obvious, but recent experiences in which this JOURNAL has been concerned, as well as similar ones which have been learned of by reading, indicate that the matter is not so clearly fixed in the minds of some editors as it might be, or else that book reviews are not taken as seriously as they should be.

Of the making of books there is no end. Some are not worth the space of a review, but we believe it to be a part of the duty of a journal to keep in touch with new literature, and to have on its staff a corps of experts who will abstract and criticize new material or good collections of old material. This JOURNAL has a carefully prepared list of readers to whom books on various subjects are assigned, and our attempt always is to criticize fairly, pointing out what we believe to be errors and emphasizing good features.

That different readers should take different views of a given book is, to a certain extent, natural and inevitable, but such glaring inconsistencies as are sometimes noted should not occur. In one instance, a book which was filled with scientific blunders was severely criticized by two conscientious and capable reviewers, much to the disgust and even anger of its author. A third reviewer equally conscientious, but lacking in certain training required for the proper criticism of this book, praised it to the sky. Quite recently, this JOURNAL has been taken to task by an author for a review written by one of the most honest and well prepared men to be found anywhere. In a recent issue of a contemporary journal the matter is again brought to the front. Apparently a book had been given to a faddist who utilized his review to express the opinion held by a cult instead of giving a fair statement of the author's views, and of those generally held by specialists in the branch of medicine about which the author was writing.

There is little question that many men out of touch with the large educational centers buy their books largely on account of the reviews which they see in standard journals. For this reason, if for no other, reviews should be well considered. Books which are distinctly pernicious in their teachings should be exposed and the reading public should be warned against waste of money. It is also the duty of a journal to counteract as far as possible false propaganda. Fairly recently we received a book which was said to have been awarded a prize of $12,500. Naturally we were most expectant of something above the average. The book was a piece of propaganda of the worst possible type. The claims made for it were fraudulent from beginning to end and, of course, no review was published. This is an extreme instance, but it illustrates what editors are up against at times. The rights of the publisher are also to be considered, though they should never influence a reviewer to say good things about a book which does not deserve them.

Reviews then should be written by specialists who are well informed in the subject of which the particular book in hand treats. They should be possessed of judgment and the critical sense. They should point out fallacies where they exist, and in the selection of one or the other of several theories, should indicate which is the most plausible and generally accepted on the basis of scientific fact. Reviews should be a guide by which useful books are distributed to the public, and those who buy them on account of what has been said should never have occasion to feel that they have been misled.

CARBON MONOXIDE POISONING

WITH THE coming of cold weather, it will not be amiss to give a word of warning concerning poisoning by carbon monoxide gas from domestic heating appliances. Such a warning is doubly important on account of a press article which has recently had fairly wide distribution throughout the country, stating that gas heating is prescribed by doctors on account of health. It is necessary to point out that the medical authorities quoted are all in England, and, admitting that the statements attributed to them were as given without modification, it must still be pointed out that the conditions which exist in England do not pertain to America.

The flueless gas heating stove is responsible for most of the poisoning in this country, and of these the so-called "radiant heater" has been found to be the most dangerous. Gas hot plates and cooking stoves cause a certain amount of poisoning, but chiefly when they are used for heating purposes since the burning is then continued for a number of hours at a time. Gas water heaters also cause some deaths and asphyxiations. Carbon monoxide is especially liable to be formed by the "radiant" heater when the "glowers" are incandescent more than three-fourths of the distance from the top to the bottom. Even the best types of radiant heaters are subject to this condition, while the cheaper types generate CO under almost all conditions of operation.

During the winter of 1922–23 in the State of Ohio, there were 64 deaths and 113 cases of partial asphyxiation. Of these, 41 deaths and 46 asphyxiations were due to heaters, generally of the radiant type. For the winter of 1923–24 there were in the State of Ohio 61 deaths, 42 of which were due to gas heaters. These cases are not taken from newspaper reports, but have been investigated and authentically traced to CO poisoning by the officers of the State Board of Health. A health officer writes: "I have myself viewed the bodies of a father and mother and four children asphyxiated by a most innocent looking, small type, radiant heater; also the bodies of a bridal couple asphyxiated on their wedding night by a portable radiant heater, that is, one which can be carried around by a bail handle, and having only five clay glowers." Poisonings in Ohio are more than usually significant since the natural gas widely used in that state contains no carbon monoxide and is nontoxic otherwise.

The most important measure to prevent the occurrence of asphyxiation by gas heaters is an abundant supply of flues to carry off all waste products. The best types are set back in fireplaces which have chimney flues. It is important also to see that the flues are open and have sufficient draft under all weather conditions. Water heaters in bath rooms are particularly dangerous on account of the small size of the rooms, and from the fact that they are kept closed while in use. The instantaneous heaters are especially apt to generate considerable amounts of CO. In an ordinary sized bath room, enough gas can collect within fifteen minutes to asphyxiate the bather. In Ohio this matter has been the subject of consideration by the State Legislature where a bill was drafted providing for the proper designing and construction of gas heaters, for their testing and approval under the State Department of Health, for the fluing and ventilating of all gas heating appliances, and placing on each piece of apparatus a stamp by the manufacturer showing such approval. The bill did not pass, but it indicates the importance attached to such poisoning in Ohio.

In this connection, the automobile must not be forgotten as a source of danger, as all internal combustion engines are liable to generate CO, especially when the

carburetor is not properly adjusted. Garages should be well ventilated, and have doors that open outward. An engine should never be run in a closed garage and it is especially dangerous to get under the car while the engine is running.

Carbon monoxide has no odor, taste, color, nor irritant action, and can be present in large quantities without being detected by the senses. One-tenth of one per cent in the air will cause fatal results in a few hours. It has 300 times the affinity for the blood that oxygen has, and forms a stable compound with hemoglobin in the red blood cells which is not easily broken up. In addition to the acute, there are many cases of more or less chronic poisoning, in which the symptoms may vary from slight discomfort to extreme ill health. A word to the wise is sufficient.

THE PROPHYLAXIS OF DIPHTHERIA

THIS JOURNAL has been singularly fortunate in being able to present this subject from time to time in articles written by those who have had the largest experience in this work, and our readers have in this way been able to keep abreast of what was newest and best proven.

While both the Schick test and the immunization by toxin and antitoxin mixtures were proposed by Europeans, America has been the country in which this work has been done on the largest scale, and in which the methods have received their most rigid testing. Nowhere else in the world have these methods been carried out on anything like the number of children that have been treated by Park and Zingher in the city of New York.

It will, therefore, not be a surprise to anyone who has kept in touch with this subject to find that a special report by Dr. Van Boeckel, made for the Health Organization of the League of Nations, is made up largely of American methods and American conclusions. None the less, this excellent report contains a complete bibliography from every part of the world, and gives in an easily accessible form in a pamphlet of fifty-two pages a clear and masterful presentation of the entire subject, "The Prophylaxis of Diphtheria."[1]

The author concludes that the results in the United States are so encouraging that the methods pursued here should be popularized in Europe as widely as possible. He very properly says that the success of prophylactic vaccination should not lead us to abandon the older methods. This point is also brought out in the recent excellent report of the Special Committee of the English Medical Research Council, and in this JOURNAL in a recent article.[2]

The ideal vaccination against diphtheria has not yet been discovered, and recent work in this country and in England particularly, indicates that the antigen of the future may not be the toxin-antitoxin mixture now in use. At this time, the methods used in America are unquestionably the best yet devised and they are the only methods whose value has been demonstrated by tens of thousands of cases in actual practice.

We are correctly warned that the mixtures of toxin and antitoxin must be prepared by experts and carefully preserved in order to avoid danger. Our methods have reached such a degree of perfection that health authorities must apply prophylactic treatment in areas in which diphtheria is present, if they wish to avoid the charge of neglecting to utilize all possible means at their disposal. In carrying out the campaign, both in this country and in Europe, the first step is the teaching of the medical profession, and next the public, concerning the advantages of the newer methods, which should then be applied whenever and wherever conditions arise in which they may be resorted to with advantage.

The author of this excellent study considers it improbable that the people of Europe will adopt a campaign against diphtheria which will show anything like the vigor and enthusiasm evinced in this country.

The report of the English Medical Research Council with this study of prophylaxis gives to the health officers and laboratory workers a library on diphtheria which is unexcelled.

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1. The Prophylaxis of Diphtheria by Dr. Louis Van Boeckel, Director of the Laboratory of the Belgian Public Health Department. C. 169. M. 48. 1924. III. C. H. 184.

2. Is the Routine Prophylactic Use of Diphtheria Antitoxin Justified? A. Parker Hitchins. *A. J. P. H.* Oct., 1924, pp. 855-865.

ASSOCIATION NEWS

GEORGE CHANDLER WHIPPLE

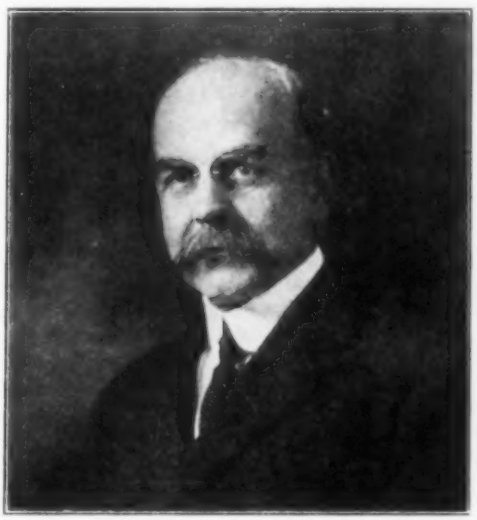
In the lamented and untimely death of George Chandler Whipple, Gordon McKay Professor of Sanitary Engineering at Harvard University, which occurred suddenly on November 27, the public health profession lost one of its most useful practitioners; our Association a zealous and honored Fellow, and his wide circle of associates and acquaintances a beloved, trusted and loyal friend.

Professor Whipple was born in New Boston, N. H., March 2, 1866. On completing his preparatory studies he elected civil engineering as a life work and was graduated from the Massachusetts Institute of Technology in 1889. During his senior year at this institution he came under the instruction of Professor Sedgwick, and largely through the influence of this great teacher he entered the sanitary side of engineering, a field in which he made a brilliant and honorable record, and on which he has left an indelible impression.

As director of the Chestnut Hill Laboratory of the Boston water works (1889–1897) and the Mt. Prospect Laboratory at Brooklyn (1897–1904), he conducted researches and practical investigations which have profoundly influenced the study of water supply problems. In 1904 he resigned his official duties to enter the consulting field as a member of the firm of Hazen and Whipple, a firm too well known for its sound contributions to sanitary engineering to require further comment here, and with which he maintained a connection until his death.

Believing that his service to sanitation could be enhanced by academic connections, and with a deep love for teaching, he accepted the position of Professor of Water Supply at the Brooklyn Polytechnic Institute in 1907 where he remained until 1911, when he went to Harvard University as Professor of Sanitary Engineering. Here developed a broad expansion of Professor Whipple's interests in public health. In association with Professor Sedgwick of the Massachusetts Institute of Technology and Professor Rosenau of the Harvard Medical School, he shared in the establishment in 1912-13, of the unique School of Public Health conducted jointly by Harvard and Technology, which for the nine years of its existence was a training ground for public health workers without parallel in the history of education.

As a teacher of sanitary engineering and vital statistics, Professor Whipple's service has been inestimable. As a writer he was prolific, sound and practical. His books, "The Microscopy of Drinking Water," "Typhoid Fever," "The Value of Pure Water," "Vital Statistics," "State Sanitation," and "Manual of Fresh Water Biology" (with Professor H. B. Ward), are everywhere recognized as standard works.



George Chandler Whipple

As a member and Fellow of the American Public Health Association, he has been for many years closely and intimately connected with some of its most valuable and worthwhile work. He joined the Association in 1899, and immediately became identified with the Committee on Standard Methods of Water Analysis, serving as Secretary from 1900 to 1903. He was a member of the Advisory Editorial Board of the JOURNAL from the time of the Board's establishment in 1914 to 1922, and his numerous contributions to the JOURNAL bear witness to his constant labors and his great interest in it. In 1915 he was

elected Vice-Chairman of the Sanitary Engineering Section, and in 1916 he succeeded to the Chairmanship. He was elected a Charter Fellow of the Association in 1922.

As a public servant on the Public Health Council of the Massachusetts State Department of Health, the Massachusetts Homestead Commission, the Committee on Building Districts and Restrictions of New York City, and the Cambridge Sanitary Commission, he gave invaluable service to city and state. Nor were his broad interests only local. The Federal Department of Commerce and the United States Public Health Service enlisted his activities, and in 1917 he was Deputy Commissioner to Russia in the American Red Cross. In 1920 he was found as Chief of the Department of Sanitation in the League of Red Cross Societies in Geneva, and as such devoted considerable time to the study of typhus fever in Roumania.

The bare statement recorded above fails to include many of the activities in which Professor Whipple participated, or in which he was the prime mover; nor does it indicate his rare personality and unblemished character. He was deeply interested in many professional societies and lesser organizations for the public welfare. One of his colleagues recently said, "What I most admired in Whipple was his public spirit."

He is a notable example of a man using his training, abilities and social accomplishments not for private gain but for the benefit of his fellowmen. Those who knew him well found in him a friendliness and generosity of spirit, coöperation, breadth of sympathy, and consideration so combined with humor and good-fellowship that he was a welcome addition in any circle. Not only the professions of engineering and public health, but the world at large was enriched by his character, personality and devotion to the highest ideals of service.

DR. LUTHER M. POWERS

Dr. Luther M. Powers, Health Commissioner of Los Angeles since 1893, died October 31st.

Few health officers have served their communities for so long a period of time. Dr. Powers saw Los Angeles grow from a city of 50,000 to one of the largest cities in the United States. The manifold public health problems incidental to this rapid increase of population would have been overwhelming to the average man. Dr. Powers met these problems resolutely and achieved remarkable results in the maintenance of public health in Los Angeles. He inspired confidence and was given full public support. His passing leaves a gap that cannot be easily filled. For more than thirty years he worked unceasingly for the good of Los Angeles.

He has been a member of the Association since 1913, and was elected a Charter Fellow at the Cleveland Annual Meeting in 1922.

LIST OF MEMBERS

Proposed for election to the A. P. H. A. November 1 to November 31, inclusive.
Names of New Members are set in Light Face Type.
Names of Sponsors are set in **Bold Face Type.**

FRANCE

Homer N. Calver, New York, N. Y.
F. R. Humbert, M.D., Paris, France, Director, Health Division, League of Red Cross Societies.

ILLINOIS

Arthur E. Gorman, Chicago, Ill.
F. G. Merckel, Chicago, Ill., Water Sterilization.

MASSACHUSETTS

Willard E. Ward, Brookline, Mass.
George D. Melican, B.S., Worcester, Mass., Inspector of Milk.

MISSOURI

Pearl McIver, R.N., Jefferson City, Mo.
Martha A. Sander, Cape Girardeau, Mo., School Nurse.

NEW JERSEY

Homer N. Calver, New York, N. Y.
Andrew F. McBride, M.D., Trenton, N. J., Commissioner of Labor.

NEW YORK

Wade Wright, New York, N. Y.
Eleanor Rantoul, New York, N. Y., Research Asst., Policy Holders Service Bureau, Metropolitan Life Insurance Co.

NORTH CAROLINA

Homer N. Calver, New York, N. Y.
Rembert Ernest Broadway, M.D., Southport, N. C., Health Officer.

OHIO

Edward J. Schwartz, M.D., Columbus, Ohio.
T. F. Myler, M.D., Washington Court House, Ohio, Health Commissioner of the Combined Health Districts of Fayette Co. and Washington Court House City, Ohio.

PENNSYLVANIA

Homer **N. Calver, New York, N. Y.**
Harvey D. Brown, Ph.D., Philadelphia, Pa., Director, Phila. Health Council and Tuberculosis Committee.

TEXAS

Homer N. Calver, New York, N. Y.
Malone Duggan, M.D., Austin, Texas, President State Board of Health.

ASSOCIATE MEMBERS

CALIFORNIA

Alice **Kimball, Long Beach, Cal.**
Paul A. Watson, B.Sc., Long Beach, Cal., Supt. and Bacteriologist, Mountain View Dairies.

CANADA

John O. **Spain, Washington, D. C.**
Samuel J. Manchester, Toronto, Ont., Director of Vital Statistics.

CONNECTICUT

Leo F. Rettger, New Haven, Conn.
James Geo. McAlpine, M.A., Ph.D., Storrs Agricultural Experiment Station, Storrs, Conn., Assistant Bacteriologist, Department of Animal Diseases.

ILLINOIS

Surgeon Taliaferro Clark, Washington, D. C.
C. N. Johnson, Chicago, Ill.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to office in New York City. In replying give age, professional training, salary requirement, previous positions held and three or more references.

Medical **Interne (Psychiatric).**—Applications for medical interne (psychiatric) will be rated as received until June 30, 1925. The examination is to fill vacancies in Saint Elizabeths Hospital, Washington, D. C., at an entrance salary of $1,860 a year. Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the post office or customhouse in any city.

POSITION WANTED

Positions wanted announcements of 50 words or less will be carried for individuals at a charge of $2.00 per insertion. Copy should be received at the New York office by the 8th of the month preceding publication.

Wanted: Position by young woman with B.S. degree, three years' teaching and three years' laboratory experience in chemical and bacteriological laboratories. Prefer milk or water laboratory work. Address 337, care of this JOURNAL, New York address.

Wanted: Position in whole-time public health work in the east, epidemiological, administrative or other. Have M.D. and Dr. P.H. degrees from the University of Pennsylvania. Extensive experience in exclusive public health work for over ten years. At present a whole-time health officer. Fellow A.P.H.A. Address 335, care of this JOURNAL, New York address.

Wanted: Laboratory appointment by young woman with B.S. degree from University of Tennessee. Special training in public health work and bacteriology. Also two years' laboratory experience. Excellent references. Address Reba Ellis, Dayton, Tennessee.

Wanted: Position as health officer of a growing community that needs a man of keen foresight and one who has had the training and experience necessary for the development of a well-balanced department. Address 339, care of this JOURNAL, New York address.

Wanted: Laboratory position in the middle west. Experience in water and milk analysis; Wassermann and clinical work; has certificate of bacteriology and blood chemistry; 35 years old; married. Can start work about March 1. Address 338, care of this JOURNAL, New York address.

Position wanted by pathologist, trained in and instructor in surgical tissues and all laboratory diagnoses of private and hospital laboratories; was in charge of base hospital laboratory during war; highest references; ten years' experience; available summer 1925 or '26; single, Protestant, Rotarian, Shriner; owning complete laboratory equipment; seeking first class connection preferably per cent basis group or clinic, etc.; desiring also university connection; willing to qualify by practical and theoretical experience. Address G. O., 336, care of this JOURNAL, New York address.

CONSTITUTION AND BY-LAWS, AND CONSTITUTION FOR SECTIONS, AMERICAN PUBLIC HEALTH ASSOCIATION

As Amended by the Governing Council at the Fifty-Third Annual Meeting, Detroit, Michigan, October 20–23, 1924.

ARTICLE I

NAME

The name of this Association, incorporated under the laws of Massachusetts, is the American Public Health Association.

ARTICLE II

OBJECT

The object of this Association is to protect and promote public and personal health.

ARTICLE III

GOVERNING COUNCIL

A. *Composition:* There shall be a Governing Council consisting of:

1. The officers of the Association.

2. Thirty members of the Council, to be elected with due regard to geographical and membership considerations, by and from the Fellowship of the Association, for three-year terms, one-third retiring each year.

If one of these members is elected a Section Chairman, Vice-Chairman, or Secretary, a new Councilor to fill such vacancy shall be elected by the Association.

3. The Chairman, Vice-Chairman and Secretary of each Section.

4. A representative to be appointed by the governing body of each affiliated state health society to serve for one year on the Governing Council. Such representative shall be a Fellow of the American Public Health Association.

B. *Terms:* Terms of Councilors shall begin at the end of the annual meeting when elected, and shall terminate at the end of the annual meeting at expiration of term; provided that Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

C. *Reëlection:* After two consecutive terms, an elective Councilor shall be ineligible for reëlection to the Council during one Association year.

D. *The Officers* of the Association shall be the officers of the Council.

E. *Functions:* The functions of the Council shall be:

1. To establish policies for the Association and for the guidance of the Executive Board and the officers.

2. To establish Sections of the Association, to combine or discontinue them when necessary, to maintain coördination among them, and to formulate general rules governing the policies of the Sections.

3. To submit to the vote of the Association all resolutions which have received the approval of the Governing Council.

4. To elect Affiliated Societies, Fellows and Honorary Fellows as provided in the By-laws.

5. To elect the Executive Board and the officers of the Association.

6. To receive from the President, on behalf of the Executive Board, a report of the meetings, policies and work of the Executive Board; a report from the Executive Secretary concerning the administrative work of the year; and a report from the Treasurer concerning the finances of the Association.

F. *A Quorum* of the Council shall consist of ten Councilors.

G. *Meetings* of the Council shall be called by the Executive Secretary at the request of the President, or at the request in writing of any twelve Councilors. In the latter case, the call to meeting, issued at least twenty days in advance, shall state the purpose of the meeting.

ARTICLE IV

OFFICERS

The officers of this Association shall be a President, three Vice-Presidents, an Executive Secretary, and a Treasurer. The officers, with the exception of the Executive Secretary, shall be nominated and elected by written ballot of the Governing Council. Officers shall serve from the close of the annual meeting when elected, until the close of the next annual meeting, and until their successors are elected and qualified. A majority vote of the Councilors voting shall be required to elect, and if no candidate receives a majority vote on the first ballot, the candidate receiving the smallest number of votes shall be dropped after each ballot in succession until a majority vote is obtained. The Executive Secretary shall be elected by and serve at the pleasure of the Executive Board.

ARTICLE V

AMENDMENTS

This Constitution may be amended by a two-thirds vote of the members of the Association present and voting at an annual meeting, provided that the specific amendment to be acted upon is published in the official publication of the Association not less than thirty days prior to the meeting, and provided further that the amendment has received the approval of the Governing Council.

BY-LAWS

ARTICLE I

MEMBERSHIP AND DUES

A. There shall be a standing Committee of the Governing Council on Eligibility, consisting of one Fellow from each established section to be appointed by the President, with terms of three years each, as equal a number as possible expiring each year, the terms of

those first appointed to be determined by lot conducted by the Executive Board; this Committee to perform such duties as may be specified herein, and such other duties as may be assigned to it from time to time by the Governing Council.

B. There shall be six classes of constituents who may be elected from the United States, Canada, Mexico, Cuba, and such other countries as may be admitted to representation in the Association. This provision shall not apply to Honorary Fellows or Associate Members. The respective appellations, qualifications for election, and dues shall be as follows:

1. *Fellows:* Only professional health workers, who have been members of the Association for at least two years, and of established professional standing (whether employed by public or private agencies or in independent private practice) shall be eligible for election as Fellows, provided that a member shall be not less than thirty years old at the time the application for Fellowship is made, and provided, further, that the following persons shall be considered to have an established standing in the profession of public health, namely:

a. A person who has attained the degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, or other equivalent degree, according to standards approved by the Committee on Public Health Training of the American Public Health Association.

b. A person who has attained an academic or professional degree involving training in public health, and who has been regularly engaged in public health work for four years, having rendered meritorious service in the public health profession, either as a health officer or in responsible charge of work in a state or municipal department of health or other official public health organization.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing equivalent to that required for Fellows under paragraphs "a" and "b."

d. A person regularly engaged in public health work for at least five years, who has given evidence of special proficiency in the service of an official or unofficial public health organization, and who has attained a professional standing equivalent to that required for Fellows under paragraphs "a" and "b."

e. A teacher of public health or one of its constituent sciences. As such he shall have attained distinction as an expounder of the principles of public health or its constituent sciences and he shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years of experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch of public health service, and who has attained a professional standing aquivalent to that required for Fellows under paragraphs "a" and "b."

The application for Fellowship shall be made on an approved form and shall be sponsored by two Fellows of the Association who shall be Fellows of the Section with which affiliation is desired, provided, however, that when affiliation with a Section is not desired, the sponsors may be any two Fellows in good standing in the Association. Fellows without section affiliation shall be known as unaffiliated Fellows.

When the application has been duly sponsored and otherwise completed, it shall be transmitted to the Executive Secretary of the Association, who will make note thereon of such knowledge as he may have concerning the standing of the applicant in the Association. The application shall be forwarded by the Executive Secretary to the secretary of the Section in which affiliation is desired, for the approval of the Section Council, and when acted upon by the Section Council, it shall be returned to the Executive Secretary by the Secretary of the Section, after he has made endorsement on the application of the action of the Section Council. When the application is for unaffiliated Fellowship, the Executive Board of the Association shall act in place of the Section Council. When the application has been approved by a majority of the Section Council or the Executive Board, as above provided, it shall be voted upon by the Governing Council, provided the name of the applicant shall have been officially published at least fifteen days in advance, and provided further that the application shall have been approved by the Committee on Eligibility.

A Fellow may belong to and vote in only one Section, but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the latter Section. Unaffiliated Fellows may become affiliated with a Section if approved by vote of a majority of the Council of the Section in which affiliation is desired.

The right to vote and to hold office or to serve as chairman of a committee in the Association shall be limited to the Fellows of the Association, whether Section Fellows or unaffiliated Fellows. The right to vote and to hold office or to serve as chairman of a committee in a Section shall, however, be limited to the respective Fellows in such Sections.

The dues of Fellows shall be $10 per year. Nonpayment of dues within six months shall invalidate Association Fellowship from the time dues have lapsed until dues are paid.

2. *Honorary Fellows:* Honorary Fellows may be elected by the Governing Council for distinguished service in public health. Honorary Fellowship shall not include voting power or payment of dues.

3. *Members:* Persons professionally engaged in public health work shall be eligible for election as active members when sponsored by two Fellows of the Association. They may serve on committees, except as chairmen. Dues $5.00 per year. A member may belong to only

one Section but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the latter Section. Unaffiliated members may become affiliated with a Section if approved by vote of a majority of the Council of the Section in which affiliation is desired.

4. *Associate Members:* Persons interested in public health shall be eligible as Associate Members. They may serve on committees, except as chairmen. Dues $5.00 per year.

5. *Sustaining Members:* Individuals or corporations interested in public health may be elected to Sustaining Membership. Dues $50 or more per year.

6. *Affiliated State Public Health Societies:* State public health societies, or associations primarily promoted as organizations of professional public-health workers for the same general objects as those of the American Public Health Association, shall be eligible to election as Affiliated Societies. There shall be only one such Affiliated Society admitted from each state. Dues: One Dollar per thousand of annual budget appropriation, the maximum dues per society being one hundred dollars, and the minimum dues ten dollars per year.

A state public health association applying for affiliation with the American Public Health Association shall send with its application a copy of its constitution, last annual budget, and such other evidences of its qualifications as such state association may desire to submit, or as may be required by the American Public Health Association.

B. *Election:* The election of Fellows (see A1 above), Honorary Fellows and Affiliated Societies shall be by the Governing Council.

The election of Members, Associate Members, and Sustaining Members shall be by a committee appointed by the Executive Board.

Three-fourths of the votes cast shall be requisite for election.

C. *Dues:* Dues are payable annually in advance. All constituents paying dues shall be entitled to receive the AMERICAN JOURNAL OF PUBLIC HEALTH and, or, such other publications as may be designated by the Executive Board, which shall determine the proportion of dues to be devoted to this purpose.

Constituents of any class whose dues are unpaid for six months or more shall be considered not in good standing. Constituents not in good standing shall not be entitled to vote, hold office or enjoy other privileges or powers of membership. Good standing may be resumed upon the payment of all arrears and dues in advance for one year, provided, however, the lapsed period is not greater than one year. The secretary shall notify by registered mail all constituents who have been in arrears for a period of eleven months. The names of constituents in any class whose dues remain unpaid for one year or more shall be presented to the Executive Board which shall order the names of such constituents stricken from the membership roll, provided, however, such constituents have been duly notified as hereinbefore provided in this paragraph. Constituents whose names have been stricken from the rolls in this manner may be again admitted upon the payment of all arrears and in the manner provided for the election of new constituents in the class for which they make application provided such person or organization complies with the eligibility requirements at the time the new application is made.

ARTICLE II

EXECUTIVE BOARD

A. *Composition:* There shall be an Executive Board of nine members elected by the Governing Council, six of whom shall be members of the Governing Council, and three of whom shall be the President, retiring President, and Treasurer.

B. *The Terms* of the President, retiring President, and Treasurer as Executive Board members shall be one year each, and the terms of the other members shall be two years each, expiring in rotation, three each year. These terms shall begin at the end of the annual meeting at which elected, and shall continue until the end of the annual meeting at expiration of term, provided that newly elected members of the Board shall have the right to attend meetings as soon as elected, and shall have no vote until installed.

C. *Reëlection:* After two consecutive terms a member of the Executive Board shall be ineligible for reëlection during one Association year. This provision shall not apply to an officer of the Association.

D. *The Officers* of the Association shall be the officers of the Executive Board.

E. *Duties:* The duties of the Executive Board shall be:

1. To direct the administrative work of the Association.
2. To act as trustee of its properties.
3. To procure funds and to authorize budgets for the Association work.
4. In general to carry out the policies of the Governing Council between meetings of the latter.

F. *A Quorum* of the Executive Board shall consist of four Members.

ARTICLE III

MEETINGS OF THE ASSOCIATION

There shall be at least one annual meeting of the Association, held at a place to be selected by the Governing Council. Special meetings of the Association may be called by a majority vote of the Governing Council, the Executive Board, or the Association.

ARTICLE IV

SECTIONS

Sections shall elect their own officers. They shall conduct sessions in coöperation with and under the supervision of the Executive Board. The Constitution and By-laws of Sections and amendments thereto shall be submitted for the approval of the Governing Council, and shall be valid only after such approval.

ARTICLE V
PUBLICATIONS

All publications of the Association and of its Sections shall be issued under the direction of the Executive Board. The Executive Board shall appoint a Managing Editor of the official journal, who may also be the Executive Secretary of the Association. The Executive Secretary shall, with the approval of the Executive Board, appoint an Editorial Board of not less than five members, to serve at the pleasure of the Executive Board. All papers and reports for the annual meetings are to be accepted with the understanding that they shall be the property of the Association for publication, unless this right is waived by the Managing Editor.

ARTICLE VI
FINANCES

The Executive Secretary shall receive and deposit to the account of the Treasurer all remittances sent to the Association. The Treasurer shall be custodian of investments of the Association and shall disburse funds in accordance with duly authorized vouchers. With the approval of the Executive Board he may establish a drawing account for the Executive Secretary. The Executive Secretary shall send each month to members of the Executive Board a financial summary of receipts and disbursements. Once each month, or oftener if called for, he shall also forward to the Treasurer and President an itemized statement of all expenditures. The Executive Secretary and the Treasurer shall be bonded at the expense of the Association in an amount to be determined by the Executive Board. The books of the Association shall be audited annually by certified public accountants, to be appointed by the Executive Board.

ARTICLE VII
COMMITTEES

Committees of the Association shall be authorized by the Governing Council or the Executive Board. The President shall appoint the members of such committees. Such appointments expire at the next annual meeting, unless otherwise specified.

ARTICLE VIII
AMENDMENTS

These By-laws may be amended by a majority vote of the total membership of the Governing Council during the annual meeting, provided that twenty-four hours prior written notice thereof has been given. The By-laws may further be amended by a two-thirds vote of those voting at any meeting of the Governing Council called for the purpose; provided that notice thereof shall have been given at least fifteen days prior to such meeting.

CONSTITUTION FOR SECTIONS

ARTICLE I
NAME

The name of this body shall be the ..... Section of the American Public Health Association.

ARTICLE II
SCOPE OR OBJECT

(To be stated briefly for each Section.)

ARTICLE III
MEMBERSHIP

A. *Voting Power:* The right to vote and hold office or to serve as the chairman of a committee shall be limited to Fellows of this Section who have been elected under the By-laws of the Association.

Members may participate in the scientific sessions of any Section and may affiliate with any one Section. They may serve on committees except as chairmen, but shall not vote or hold office.

B. *Payment of Dues* in the Association is a prerequisite to Section Fellowship, and nonpayment of dues shall invalidate Section Fellowship and membership.

ARTICLE IV
SECTION OFFICERS

A. *The Officers* of this Section shall be a Chairman, a Vice-Chairman, and a Secretary. These three officers shall be the representatives of the Section to the Governing Council of the Association.

B. *Terms:* New terms begin and old terms expire at the end of annual meetings. After four consecutive years in any elective Section office, except that of Secretary, a member shall be ineligible to reëlection to that office during one Association year.

C. *The Chairman* shall preside at meetings of the Section and of the Section Council, and shall be Chairman of the Committee on Program, and of the Committee to advise on Publication of Papers in the AMERICAN JOURNAL OF PUBLIC HEALTH.

D. *The Vice-Chairman* shall preside at meetings of the Section and of the Council in the absence of the Chairman, and he shall be a member of the Section Council.

E. *The Secretary* of the Section shall keep the minutes, and other records of the Section and of the Section Council; and shall transmit to the Secretary of the Association a copy of the minutes of both business and scientific sessions as soon as practicable thereafter. When unable to be present at meetings, he shall thoroughly instruct a substitute as far in advance of the meeting as possible.

The Section Nominating Committee shall renominate capable Section Secretaries whenever practicable, in the interest of continuity in Section work and policies.

ARTICLE V

NOMINATION AND ELECTION

A. *Nominating Committee:* The Section Chairman, with the advice of the Executive Committee of the Section, shall appoint a Committee on Nominations at least fifteen days before each annual meeting. The Section Secretary shall be a member of such Committee.

The Committee on Nominations shall present, not later than the second meeting of the Section, at each annual meeting of the Association a list of nominees for the Section offices, and for membership in the Section Council; provided, that if the name of any Fellow be transmitted to the Section Secretary over the signature of ten Fellows of the Section at least fifteen days in advance of an annual meeting, the Nominating Committee shall add the name of such Fellows to its own list of nominees. No nominations shall be made from the floor of the meeting. Election shall be by the Fellows of the Section.

ARTICLE VI

SECTION COUNCIL

A. *Composition:* There shall be a Section Council composed of the three officers and from three to six elective members, who shall be Fellows of the Section.

B. *The Terms* of elective Councilors shall be two years each and shall expire in rotation. Terms of Councilors shall begin immediately after the annual meeting when elected; provided that Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

C. *Duties:* The duties of the Section Council shall be:

1. To act in the capacity of a board of directors for the Section.
2. To supplement the Section in authorizing the appointment of committees by the Section Chairman, and to advise in the selection of personnel.
3. To act as a Committee on Resolutions for the Section.
4. To nominate Fellows for election under the By-laws of the Association.

D. *Executive Committees:* Between annual meetings, the Section officers shall act as an Executive Committee of the Section Council.

E. *Meetings:* At least one meeting of the Council must be held at the annual meeting of the Section. Interim meetings may also be called by the Section Chairman.

F. *Attendance:* Absence from two consecutive annual meetings, or failure to answer two consecutive official communications on Section business requiring reply, shall be equivalent to resignation from the Council, subject to reinstatement by the Council if good cause is furnished.

ARTICLE VII

SECTION COMMITTEES

A. *Authorization:* Committees of the Section may be authorized by the Section or by the Section Council.

B. *Appointment:* Appointment of committee personnel shall, unless otherwise specified, be by the Section Chairman with the advice of the Section Council.

C. *Reports:* All scientific reports, upon presentation to the Section, shall be referred by the Chairman to the Section Council, or to a special reference committee which shall report back to the Section. The Section shall then vote on each report whether or not to adopt. In case of failure of the Section to take definite action before the end of the annual meeting, such duty shall devolve upon the Section Council.

ARTICLE VIII

PROGRAMS

A. *The Programs of the Section* shall be prepared by a Committee including the Section officers. The Committee shall also inform the editor of the official Journal as to papers and reports which, in the opinion of the Committee, merit publication.

B. *Standards:* All programs shall be prepared under the standards established by the Central Committee on Programs of the Association, composed of the Program Chairmen of all Sections and the President and Secretary of the Association.

C. *All Section Papers* and reports shall automatically become the property of the Association for publication purposes, except as this right is waived by the Managing Editor.

ARTICLE IX

AMENDMENTS

Amendments to this Constitution may be made only by the Governing Council of the Association, and in the same manner as the By-laws of the Association; provided, that the Section may adopt By-laws not in conflict with this Constitution.

BOOKS AND REPORTS

Faith and **Health.**—*By Charles Reynolds Brown, Dean of the Divinity School, Yale University, Revised and Enlarged Edition. New York: Thomas Y. Crowell Company,* 1924. Cloth, Price $2.00 net.

We wish it were possible to quote at length from this book—the best by all odds on this subject which has come to our hands from any source. It is written by an earnest and devoted Christian minister who has given many years of careful study to the various forms of faith healing, studies undertaken apparently without bias and with the intention of getting what good there might be, and showing up the fallacies that existed. He has emerged from this study a firm believer in the miracles of modern medicine, a staunch friend of the modern physician and an able supporter of science. None the less, he retains his faith in the Christian religion and does not see any factor which prevents anyone from believing heartily in both. In speaking of the doctrines taught by certain fanatics who hold that the use of material remedies will prevent the exercise of God's power to heal, he says: "The Almighty is not so touchy as to withhold His spiritual aid because the patient is also using some material remedy which He Himself created for the use of His children." In reply to the argument that Jesus never used drugs, he says that as far as the record goes, this is true, but it is just as true that he never used an elevator nor a telephone, nor availed himself of the help given by electricity; yet the people of to-day would be very foolish to discard these modern discoveries because Christ did not use them.

There are chapters on "The Healing Miracles of Christ," "Modern Faith Cures," "Christian Science," "The Emmanuel Movement," "The Methods of Coué," "The Healing Power of Suggestion," "The Gospel of Good Health" and "The Church and Disease." Speaking of faith cures, in answer to those who hold that God is omnipotent and can heal organic diseases as well as functional ones, he says that it is not so much the question of what God can do as it is what he sees fit to do. While holding that God has the power to restore life to a man whose head has been cut off, he points out that there is no record of any such thing ever having been done, nor of any such attempt by Christ or the twelve apostles, or the medieval saints, or any of the modern healers down to Hickson.

The chapter on Christian Science is in many ways the most illuminating exposition of this cult that the reviewer has ever read. The author began the study of Christian Science in Boston in 1887 where he took lessons under Mrs. Eddy herself, in addition to two officers of the Mother Church, to one of whom Mrs. Eddy intrusted the treatment of her grandchild. His instruction cost him $300, for, as he says, however strongly these healers believe in the unreality of disease and in absent treatment, when any money is involved they are "present in person attending strictly to business."

We wish that space allowed of liberal quotations, but one must read this chapter, as well as the others, to appreciate them. The author holds that the preaching of the gospel of good health is as much a part of the duty of the church as the preaching of salvation of souls, and gives a large number of quotations from the Bible in which the apostles in writing to the various churches stressed the bodily health of those to whom they wrote. He points out the ways in which the modern church can and should take hold of the question of safeguarding the health of the community and of building up a strong and virile citizenship. The church has tremendous opportunities for shaping public opinion which is so essential for the passage of good laws and the making of appropriations sufficient to put them into execution. In this day when there seems to be a growing amount of hysteria, he holds that the church can do a great deal in teaching better habits of life, and in so instructing people that they may have better poise and balance, better sense of proportion, and a finer quality of moderation. Its duty is to teach and to practice serenity, cheerfulness and hopefulness.

We commend this book, of which we have given such an inadequate review, to every sanitarian. The world is in a state of unrest; the Christian churches, as well as those cults which profess no special religion, are taking advantage of this state of mind to push their

respective claims as healers of disease. Doubtless, many of them are sincere, and many thousands of people who are otherwise sane, can be brought forward to assert the wonders which have been accomplished in their individual cases by this, that, or the other method of healing. No type of healing, religious or otherwise, is too preposterous to gain adherents. Already in many states, legislation has been adversely affected by these cults. Many of them are well organized and maintain well trained lobbyists in our legislative halls. To successfully combat these destructive influences every physician and health officer should have the facts at hand. We commend this book also to the clergy throughout the country and of all denominations. It will strengthen and balance many a wobbly conscience, and finally we commend it to the general public, who are only too prone to run after fads without due investigation.

The Theory and Application of Colloidal Behavior.—*Robert Herman Bogue, Editor. Vol. I, The Theory of Colloidal Behavior,* xii+444+xx pp. *Vol. II, The Application of Colloidal Behavior,* vii+445-829+xx pp. *With illustrations. New York: McGraw-Hill Book Co.,* 1924. Price, $8.00.

This latest work in the International Chemical Series under the editorship of Dr. H. P. Talbot is the joint product of 34 different specialists, each contributing on some phase of this all-important aspect of nature, namely, the colloidal state of matter. This subject is not a minor phase but a major one, of physical chemistry and has fundamental relations to the practical problems of the industrial, to the agricultural and to the physiological chemist as well, and bids fair to become of increasing importance as the general theory of colloidal behavior is broadened to include the non-aqueous systems.

The first volume deals with the theoretical aspects of equilibria, surface kinetics, absorption, catalysis and structure. The second chapter by the late Professor Jacques Loeb on the crystalloidal and colloidal behavior of the proteins is the last writing of this bralliant specialist, in this field. This emphasizes the importance and significance of the hydrogen-ion concentration of protein solutions or gels and defends the concept that the proteins are in reality crystalloids both in chemical reactions and solubility, but that their large ions prevent diffusion through dialyzing membranes.

The second volume deals with the colloidal chemistry of mineral products such as ores, metals, alloys, coal, coke, tar, silica and its derivatives, and of the soil. Of special value to food chemists is Dr. Alsberg's chapters on the cereals and Dr. McCollom's on the significance of the colloids in the dietary. In the section on animal products, the chapters on gelatin and casein are of prime interest to all those dealing with foods. The final chapter by Mr. J. A. Wilson of the Sewage Commission of Milwaukee on the applications of colloidal chemistry to problems of sanitation is most valuable. An increase of 4,000 per cent in the process of dewatering activated sludge in sewage disposal plants has been made possible by the application of the principles of colloidal chemistry. These volumes are of greatest interest to biologists and laboratory workers generally as well as to theoretical and technical chemists.

Regeneration from a Physico-Chemical Viewpoint.—*By Jacques Loeb. New York: McGraw-Hill Book Co.,* 1924. xii+143 pp., 115 figs. in text. Price, $2.00.

The fundamental significance of the law of mass action in chemical processes in non-living substances is the starting point of the late Professor Jacques Loeb's experimental analysis of the phenomenon of regeneration in living organisms. The subject selected for this experimentation is the plant Bryophyllum which has the capacity of forming both shoots and rootlets from the notches in the margin of the leaves even when these are detached from the parent plant.

By a series of very simple but strikingly ingenious experiments in which the factors of gravity, light, temperature and flow of sap were utilized, the author has demonstrated that the regenerations of plantlets at the notches of the leaves are most delicately responsive to the principle of mass relations. The correlation of the dry weight of the regenerated parts with the weight of the regenerating leaf or cutting, demonstrates in every instance the operation of this controlling principle of mass relations. This principle accounts for the fact that mutilation leads to growth in places of the organism where no growth would have occurred without mutilation. Regeneration is here thus proved

to be a purely physico-chemical phenomenon.

The cause for the sharp delimitation of the areas capable of regenerating to the notches on the edge of the leaf and to the center of the axil is as yet undetected; nor does the law of mass relation reveal the reasons for the persistence of the parental type in the regenerated shoots.

The book is simply but most skillfully illustrated, and its data and their interpretation will be deeply stimulating to all who deal quantitatively and experimentally with the growth and reactions of living things.

Growth.—*By G. R. de Beer. New York: Longmans, Green & Co.* viii+120 pp., 7 pls. Price, $2.50.

The phenomenon of growth in plants and in animals is the theme of this useful booklet. The author sets out to show what growth is, what it does and how it does it. The phenomenon is analyzed into increase in size of the whole body, increase in size of parts leading to morphological differentiation and resulting from increases in size and number of cells and of intercellular substances. These changes are caused by the production of new protoplasm, the absorption of water and the secretion of non-living products. Thus regeneration of lost parts and a sexual reproduction by budding and fission are to be regarded as phases of growth.

The chapter on abnormal growths treats of the widespread occurrence in plants of galls of various types due to a wide range of stimuli ranging from fungi to nematode worms and insect larvæ. Two phases of a single species of gall-fly produce two types of galls in the leaf of the oak, a round sappy one in the spring and a hard lens-shaped one in later months. A specific irritant is responsible for each specific type of gall. The growth may be due to increase in size of the plant cells or to their multiplication or even to their differentiation.

Tissue cultures of cells detached from the body producing them and grown in serum or inorganic solutions *in vitro* reveal clearly the interaction of one kind of cells upon another. Thus kidney tissue grown *in vitro* differentiates into embryonic condition, but when connective tissue cells are added it differentiates again into kidney tubules. The causes of tumors and of cancers are to be sought in the causes of growth and in the causes of the release of the natural inhibitions to continued growth. The experimental method applied to the analysis of the conditions of growth has far-reaching relations to senescence, rejuvenation, and neoplasms. The book lacks adequate citations of authorities for conclusions and is marred by misspelled names in its bibliographies.

Smallpox and Vaccination.—*By J. J. Heagerty, M.D., D.P.H., Publication No. 32, Issued by Department of Health, Canada.*

A general discussion of smallpox and its prevention, together with a historical résumé of the disease has recently appeared in a publication by Dr. J. J. Heagerty of the Canadian Department of Health. The subject matter is well presented and should be of interest to those in the public health field as well as the laity.

The story of smallpox in Canada deserves special comment, since it is traced from the introduction of the disease in 1635 among the Montagnais Indians of the St. Lawrence valley up to the present time. Even the salient features of the 1924 outbreak in Windsor are considered. In connection with the latter epidemic it is interesting to note that the 32 smallpox deaths occurred in unvaccinated persons; the mortality among unvaccinated persons being 71 per cent.

As to the efficacy of vaccination, the Province of Quebec furnishes an excellent example. The cities of Quebec and Montreal were hotbeds of smallpox prior to 1885, the number of deaths totaling hundreds or thousands annually. The inhabitants of the province were opposed to vaccination, due to the activity and influence of antivaccinationists. During the year 1885 smallpox exacted a toll of 3,164 lives in Montreal. The people of the city and province became vaccinated after such a costly lesson, and at present in no Canadian province are the people as well vaccinated as in the Province of Quebec. This is evidenced by the fact that smallpox has not appeared there in epidemic form since the year 1885.

Prophylactic measures against smallpox are often neglected until the disease strikes in epidemic form. Dr. Heagerty's plea for vaccination is a timely one in the light of recent experience in the United States as well as Canada. Copies of the pamphlet can be secured from the Canadian Health Department, Ottawa.

Leerboek der tropische Geneeskunde.—*Door C. D. de Langen en A. Lichtenstein. Weltevreden-Batavia-Leiden: G. Kolf & Co.*, 1924, xiv+564 pp., 22 plates.

This work is written by the professors of hygiene and of tropical medicine in the medical school at Weltevreden, Java, and therefore reflects the long and extensive experience of the Dutch medical profession in the treatment and control of tropical diseases in Java and Sumatra. Quite naturally, malaria looms large in this treatise and occupies the first hundred pages. Its manifold manifestations are listed under no less than fifteen different clinical types as follows: comatose, delirious, meningitic, epileptic, tetanic, encephalitic, hemiplegic, apoplectic, spasmophilic, algidic, choleric, hyperpyretic, hemorrhagic, dysenteric and pneumonic. The intramuscular use of quinine is advised in refractory pernicious malaria and for young children. Long-continued intermittent dosage is employed after an attack of the disease. The human flagelloses, trypanosomiasis and leishmaniasis, and also relapsing fever, are very inadequately presented, probably because they are not endemic in the Dutch East Indies. Framboesia, plague, leprosy, and the fevers of short duration, such as Schüffner's pseudotyphus, are more adequately presented. The successful control of the bubonic plague in Java has resulted from quarantine control, disinfection of shipping by sulphur dioxide, isolation and quarantine of plague-stricken areas, and rat prevention by regulation and improvement of native houses.

The dysenteries are treated at length. Amoebic dysentery both acute and chronic and liver abscess are not infrequent. It is to be regretted that the authors follow Brug in the use of the confusing terms *minuta* and *tetragena* for phases in the forms of amoeba of dysentery. They report good results, contrary to the earlier reports from Java, following the use of the new German specific Yatren for the parasitic infection of the bowel. The specific dysenteric serums are the only recourse for the specific treatment of the bacillary dysenteries. Sufferers from sprue in Java are reported to present a previous history of amoebiasis in 80 per cent of the cases. The authors do not incline to the *Monilia* aetiology. They recommend a fruit diet and withdrawal from the tropics. The recent pandemics of cholera have scourged Java. The measures taken to control the disease are isolation, the use of cooked food, and boiled water or hot tea, and preventive vaccination. An extensive account of hookworm disease is given with some original illustrations of the lesions caused by the worm, and an account of an oil of chenopodium produced locally from a Javan variety of chenopodium. There is a brief account of psychoses in the tropics including a discussion of Amok. The work lacks both bibliography and index. It is a valuable addition to the literature of tropical diseases because of its local color.

Heredity in Poultry.—*By Reginald Crundall Punnett, F.R.S. London: Macmillan & Co.* xii+204 pp., 12 pls. Price, $3.25.

The force and significance of heredity can be illustrated in classroom and laboratory, but actual contact with the results of experimental breeding with animals more familiar to the child than is the fruit fly *Drosophila* now so widely used, will be of greatest permanent value, since by such means a permanent foundation can be built upon which an interest in heredity in man and in eugenics as a social possibility may be reared. To this end, Professor Punnett's treatise on *Heredity in Poultry* has a peculiar interest to all who seek to foster the dispersal of eugenical ideas and ideals in society. Children and youths, as well as grown-ups, are interested in poultry both for pleasure and for profit. With this booklet as a guide the laws of Mendel may be worked out by the amateur poultry breeder, and their operation followed in successive generations.

The text contains a simple explanation of the biological basis of these laws, of the formula derived from them, of the checker-board presentation of simply dihybrids and also of the more complex types. The examples are drawn from well-known characteristics in fowls, and the results when these are combined in various groupings in breeding are discussed. The breeder very quickly finds himself in contact with more complex problems to some of which this work will serve as an introduction.

The American Child Health Association has recently issued an Index of the Transactions of the American Child Hygiene Association, 1910–1922. This Index is an invaluable aid in locating material in the Transactions and is absolutely essential to complete your file as it is a ready reference. Price, postpaid, $5.00.

Evolution or **Christianity?**—*By William M. Goldsmith, A.M., Ph.D. With Chapters by Henry Fairfield Osborn, S. Parkes Cadman, Harry Emerson Fosdick and Lyman Abbott. St. Louis, Mo., and Winfield, Kansas: The Anderson Press,* 1924. Paper. Price, 50 cents.

This is a number of the American Truth Series, evidently inspired by the attacks of the Fundamentalists and William Jennings Bryan on the scientific truths of evolution. It is largely a compilation, giving quotations from anti-evolutionists and the answers which science makes to them. The argument is that of the scientific man who is a believer in the Bible and in Christianity, yet who believes that evolution is a proven fact. Anyone who has been disturbed by the controversy, and who needs facts which will enable him to justify his holding to evolution as well as to Christianity, will find in this book all that he is looking for.

Since the volume is written by those who believe strongly in both, the title might be criticised as indicating that one or the other must be chosen. We think a less startling, but more descriptive, title would be Evolution and Christianity.

Diabetes, and its **Treatment by Insulin and Diet.**—*A Handbook for the Patient. By Orlando H. Petty, M.D. Professor of Diseases of Metabolism in the Graduate School of Medicine, University of Pennsylvania. Philadelphia: F. A. Davis Company,* 1924. Cloth. Price, $1.50.

The author has given an excellent description of diabetes, its diagnosis, causes and prevention. There is a good discussion of foods with the methods of weighing and measuring them, and of estimating their caloric value. The test for glucose is described and illustrated. Two chapters are given to insulin and its home administration. Tables are given of foods showing excess of acid-forming or base-forming elements, the natural salt content, and the protein, fat and carbohydrate content of those in common use. Diets are worked out, and many recipes for the use of diabetic patients given.

The book is not intended to replace the physician, but to give the patient such instruction as will enable him to aid the doctor and profit by his instruction. With this purpose in view the book can be heartily recommended.

The New Hygiene.—*By H. W. Hill, M.D., M.B., D.P.H., L.M.C.C. New York: Macmillan Company,* 1924. Pp. 319. Price, $2.50.

This book, by Dr. Hill of the University of Western Ontario, is an interesting and well written one and was read by the reviewer with pleasure. It leaves one, however, with a certain doubt as to just for whom the book is written. The title carries with it the information that the book is intended for schools of nursing, normal schools and colleges; and in the preface the author states further that it is intended for students of hygiene, whether nurses or teachers. For a post-graduate course leading to the degree of D.P.H., much of the book would be very valuable. For nurses, school teachers, and the like, the subject matter is presented with a degree of intracacy which would be beyond their power of assimilation. The projects of the various chapters, as outlined throughout the book, are wide in their scope and carefully thought out; but it would seem far beyond the powers of any except the professional health officer or sanitarian. For instance, in the projects of Chapters I and II, the author asks: "What is the relation of vital statistics to the health progress of the nation? Support your statements by actual examples from statistical studies and health reports." This is a proposition from which many might well shrink even though with considerable experience of their subject. Similar objections might be noted with other items outlined in the second, third and fourth groups of projects.

The second chapter contains an excellent discussion of definitions and the relationship between hygiene, sanitation, preventive medicine, public health and other allied subjects. The definitions, however, are at variance with those reported by the Committee on Public Health Nomenclature of the Public Health Administration Section of the American Public Health Association.

In the chapters dealing with nutrition and respiration there is too much information for those who have had ground work in anatomy and physiology, and not enough for those who have not. The subject matter is presented in a readable and attractive manner which would make one wish that the author might bring out another edition considerably simplified and more applicable to the needs of those whom he names in his preface.

PUBLIC HEALTH NOTES

STATE

Massachusetts

Three years ago 117 towns of the 355 in Massachusetts had no school nursing service. Now every town in Massachusetts is supplied with school nursing service. This is the direct result of campaign work and steady effort on the part of the Massachusetts Department of Public Health, with Dr. Frederika Moore in charge of school hygiene.

New Jersey

A demonstration of the Dick test was given by Dr. Abraham Zingher, assistant director, Bureau of Laboratories, New York City Department of Health, and Mr. D. C. Bowen, chief of the Bureau of Local Health Administration of the State Department of Health, before the medical staffs of state institutions and other physicians of the state at the Village for Epileptics at Skillman, New Jersey. Dr. Zingher and Mr. Bowen performed the Dick test and control on 920 persons in three hours and twenty minutes; this included the time needed to move from one to another of four buildings in the Village. Of the number tested about 15 per cent gave a positive reaction and were given the first immunizing dose at the time the test was read. The New Jersey State Village for Epileptics is the first institution in New Jersey to make use of the Dick test and immunization against scarlet fever, as it was with the Schick test, and active immunization against diphtheria.

The new Bureau of Tuberculosis of the New Jersey State Department of Health is making a survey of all existing tuberculosis organizations in an effort to coördinate the work of state and local activities. A unification of effort will do away with any overlapping of clinic facilities and supervision and will place clinic facilities in communities where they are needed.

The November issue of the *Public Health News* contains two especially interesting and valuable papers: one by Dr. Henry B. Costill, the director of the New Jersey State Department of Health, on "Whooping Cough and Pertussis Vaccine," and another by C. K. Blanchard, assistant epidemiologist, Bureau of Local Health Administration of the State Department of Health, entitled "It Can Be Done," which reviews the work of North Carolina in bettering privy sanitation and pointing out the need for similar work in New Jersey.

The difficulties a district health officer must overcome in winning the coöperation of the local boards of health is portrayed by Dr. I. W. Knight, district health officer for three counties of New Jersey, in his paper, "Five Years As a D. H. O." Dr. Knight's paper, although written in a humorous vein, points out the pressing need for greater efforts to improve rural health administration.

Ten thousand boys have heard talks on social hygiene, given under the auspices of the Bureau of Venereal Disease Control of the New Jersey State Department of Health, during the past year. These lectures were given in the high schools of the state by Dr. Eugene L. Swan of the American Social Hygiene Association.

New Mexico

Miss Margaret Reeves has recently taken charge of the State Bureau of Child Welfare. She has been doing an extensive piece of research work for the Russell Sage Foundation for the last four years. She was connected with the Mountain Division of the Red Cross during the war and covered the greater part of the state of New Mexico in her visits to local chapters.

October brought by far the heaviest month's work this year for the State Public Health Laboratory. A total of 1,050 specimens was examined. A striking fact is that the kinds of specimens are changing; whereas, the bulk of the work used to be diphtheria cultures, it is now feces, water and Wassermanns. Each of these consumes hours of time, instead of the few minutes required by a diphtheria culture. The result is that the laboratory's burdens have grown constantly heavier, although the total specimens for this year may be smaller than for times past. It cannot give the fullest service for lack of sufficient help.

LABORATORY

C. C. YOUNG

Immunity by Inhalation of Pneumococci.—A definite degree of active immunity can be induced in mice through the repeated inhalation of live pneumococci. Only slight immunity is induced in mice by the repeated inhalation of killed organisms.—Stillman, *J. Exper. Med.*, 40:567 (Oct.), 1924. M. S. M.

Throat Swabs for Isolating Pneumococcus.—Due to the introduction of antipneumococcus serum for lobar pneumonia therapy, it is important to be able to easily isolate the causative pneumococcus. The authors advocate the use of a throat swab rather than a sputum specimen, since it is relatively easy to make, and prevents the discomfort to the patient incurred in raising the sputum. It is also of value in the case of children where it is almost impossible to obtain sputum. The authors proved that throat swab cultures give practically the same results as sputum examinations. Their reliability in comparison to blood cultures was also tested and results were equally favorable. Contamination with saliva from the mouth seemed not to interfere in the determination of the etiologic agent. The throat smears were made from the tonsillar region and the swabs immediately placed in blood broth. After 4 to 6 hours of incubation, if growth was present, 1 c.c. supernatant fluid was injected into a white mouse. Necropsy examination was performed and the agglutination-precipitation test made. Plates were usually streaked from the peritoneal exudate and heart blood. Confirmatory tests were made in doubtful cases.—F. B. Kelly and H. Gussin, *J. Infect. Dis.*, 35:323 (Oct.), 1924. M. W.

Pneumococcus Growth Inhibition.—The addition of relatively small quantities of immune serum to a mixture of rabbit serum and washed rabbit leucocytes conferred on this mixture marked growth-inhibitory and pneumococcicidal powers. The effect of the immune serum was found to be quantitative. The germicidal effect of the leucocytes was also found to be quantitative. An immune serum showing marked protective properties in mice was likewise effective in high dilutions in the *in vitro* test, and *vice versa*.—Robertson and Sia, *J. Exper. Med.*, 40:467 (Oct.), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus.—Sterile filtrates of autolyzed anaerobic cultures of the pneumococcus contain much higher concentrations of active endocellular enzymes than do the filtrates of autolyzed aerobic cultures. This may be explained by the formulation of oxidizing substances, with consequent destruction of the enzymes.—Neill and Avery, *J. Exper. Med.*, 40:423 (Oct.), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus.—On exposure of sterile extracts of the cellular substances of the pneumococcus to the air, certain enzymes are destroyed, particularly the carbohydrate-hydrolyzing enzymes. These enzymes are themselves unable to react with molecular oxygen, although the destruction is demonstrated to be due to oxidation by certain oxidizing agents which have been formed.—Neill and Avery, *J. Exper. Med.*, 40:405 (Oct.), 1924. M. S. M.

Use of Eberson Yeast Agar Medium.—The author reports the successful use of a modified yeast medium. He was able to keep viable strains of meningococcus for 11 months; gonococcus for 10 months; pneumococcus for 3 months; B. influenza for 45 days; and B. pertussis for 45 days. The details of Eberson's yeast semi-solid agar medium are as follows: a suspension of 10 gm. of baker's yeast in 100 c.c. of water was steamed at 100° C. for two hours, clarified at the end of that time with dialyzed iron (Merck) and then filtered through a Berkefeld filter. One part of the yeast extract was then added to one part of the agar mixture. The agar medium contained 1 per cent agar, 2 per cent peptone and 0.4 per cent potassium phosphate with an end reaction of about pH 7.6. This mixture was then autoclaved at 15 pounds pressure for

one-half hour and the yeast extract added with sterile precautions.—E. L. Burkey, *Jour. A. M. A.*, 83:999 (Sept. 27), 1924. C. C. Y.

Studies in Agglutination.—Immune agglutinating serum reduces the electrical charge of specific organisms. Adsorption by homologous bacteria of the agglutinins removes this property from the serum. A highly protective, non-agglutinating serum did not show the charge-reducing effect. It is suggested that the reaction may have practical diagnostic application.—Shibley, *J. Exper. Med.*, 40:453 (Oct.), 1924. M. S. M.

Virulence of Streptococci and Immunity.—The author divides the streptococci used in her study into "rough" (non-virulent) type and "smooth" (virulent) type and designates them respectively as "R" and "S." She found that the "R" type injected intraperitoneally into mice gave some protection against the "S" type of heterologous strains, and that heat-killed "R" and "S" types in some cases produced immunity in mice against the homologous "S" type. Experiments on rabbits showed that the "S" type given subcutaneously produced immunity in a marked degree against the "S" type, given intravenously.—Cowan, *Brit. J. Exp. Path.*, 5:226 (Aug.), 1924. M. C.

Significance of Serological Grouping of Hemolytic Streptococci.—Agglutination tests carried out with strains of hemolytic streptococci from the throat of scarlet fever patients, from puerperal sepsis, from erysipelas, and from miscellaneous sources, showed that the streptococci from scarlet fever form a clear-cut group distinct from other hemolytic streptococci. The apparent disappearance of streptococcus scarlatinæ from the throats of patients recovering from scarlet fever may be explained in two ways: (1) by a dying out of the organisms, or by the replacement with other replacement; (2) by a gradual and progressive loss of the specific antigenic qualities which permit the differentiation from other streptococci. It is suggested that this loss of specific antigenic quality *in vivo* may be explained if, during convalescence from scarlatina, an antitoxin is produced which acts upon the streptococci in the throat.—Author's Summary, *Brit. J. Exp. Path.*, 5:199 (Aug.), 1924.

Modification of the Capacity for Antibody Production.—It was observed that practically all "high producers" of specific hemolysins among one hundred and fifty rabbits were recorded as displaying subcutaneous abscesses at the time of removal from stock pens. In a series of nine rabbits, four infected and five control, the hemolysin production was studied after all animals had been injected with sheep cells by the same method. The average serum titer of the infected animals was fourteen times as great as the average titer of the control rabbits. Corresponding results were obtained in a second series. Experiments were carried out with experimentally infected rabbits. Animals "prepared" by intravenous injections of extract of pneumococci before the injection of sheep cells showed an average titer three times that of the controls. The author concludes that pathogenic bacteria or their products may distinctly modify the power of an animal to produce specific antibodies to a second markedly dissimilar antigen.—Schroeder, *J. M. Res.*, 44:507 (Sept.), 1924. P. L. K.

Direct Cultivation of Tubercle Bacilli from Spinal Fluids.—Occurrence of Human and Bovine Types.—The authors present (1) data to show that tubercle bacilli can be directly cultivated from spinal fluids; (2) that cultivation is possible even when the number of tubercle bacilli is so small that they cannot be demonstrated in the direct smear of the centrifuged sediment; and (3) a new series of cases to show the relative incidence of human and bovine types in tuberculous meningitis. Of 48 strains of tubercle bacilli isolated from spinal fluids from cases of tuberculous meningitis, three or 6.3 per cent proved to be of bovine origin.—Gosling and Montanus, *J. M. Res.*, 44:513 (Sept.), 1924. P. L. K.

Tubercle Bacilli Not Stainable by Ziehl as an Aid to the Early Diagnosis of Pulmonary Tuberculosis. The Much Granule.—The author believes that careful search for Much granules will enable one to make more early diagnoses of tuberculosis. He believes that the granules are a degenerative form of the bacillus, and that they offer a more favorable prognosis. He believes that there should be little difficulty in differentiating the granules from other globoid bodies found in sputum.—H. L. Wilder, *Texas State J. M.*, 1923, 19:435-437. *Abstracts of Bact.*, 8:214 (June), 1924.

The Wassermann Test.—XI. The Effect of Mercurosal on the Wassermann Reaction.—An attempt was made to determine the effect of mercurosal on the Wassermann test in cases of tertiary and latent syphilis. Tests were made at definite intervals before, during and after treatment. Duplicate tests were run in the Massachusetts Department of Health laboratory and the results of the two laboratories averaged to eliminate variations due to technic. The authors claim that the fluctuations in antibody content over short periods of time are practically negligible in untreated old cases, and therefore consider the changes in the Wassermann reactions of their patients due to the effect of treatment. They conclude that the titration method, properly controlled, is an accurate means of recording the serologic results of treatment. Mercurosal in appreciable dosage is claimed to have reduced the Wassermann reaction in ten patients 61 per cent of its previous strength; this per cent being reduced to 45 per cent, however, two and one-half months after treatment. Marked individual variation in serological response was observed. They found no evidence as to the existence of a "provocative mercury" reaction. No marked difference was noted between persons with congenital and with acquired syphilis in their response to treatment.—D. L. Belding and R. H. Holmes, *Arch. Derm. and Syph.*, 9:459 (April), 1924. P. L. K.

Simultaneous Vernes and Wassermann Tests for Syphilis.—The study is based on 300 comparative Vernes and Wassermann tests. The Vernes test requires a special mechanical mixing apparatus (melangeur) for diluting the antigen with distilled water. The antigen is an alcoholic extract of horse hair, called perethynol. A specially designed photometer is employed in reading the results. Readings are made on the basis of milligrams of precipitate per cubic centimeter. Readings below 0.15 mgm. of precipitate are of little significance. Readings above 0.15 mgm. are suggestive of syphilis. Authors conclude that the Wassermann test is more sensitive than the Vernes reaction, but this reaction furnishes a good check on the Wassermann test.—A. B. Baylis, A. E. Sheplar and W. J. MacNeal, *Arch. Derm. and Syph.*, 10:306 (May), 1924. D. J.

Bacteriologic Study of Middle Ear Infections.—A bacteriologic study of the etiology of otitis media was made on 77 acute cases and 12 chronic cases. Numerous serologic varieties of Beta hemolytic streptococci were found to be present in 53 primary ear discharges, and in 9 instances the same bacteria species were found in the throat. The author concluded that the heterogenicity of the strains isolated from the majority of acute ear infections during the period of increased incidence of respiratory disease in January and February, 1922, indicated the absence of a common primary and secondary causative agent. She recommends autogenous vaccine made from the original variety in the ear discharge.—Valentine, *J. Infec. Dis.*, 35:177 (Aug.), 1924. M. C.

Biology of Streptococcus.—A group of streptococci which agglutinate with scarlatinal immune sera has been isolated from the throats of 65 per cent of cases of scarlet fever during the first week of the disease. Strains of this group have been isolated from the throats of patients at the termination of quarantine (30 days). Hemolytic streptococci are found most frequently in the throats of convalescent patients in whom the tonsillar inflammation has not entirely subsided. The complications occurring in scarlet fever may be due to the original scarlatinal strain or may be the result of a secondary infection with pyogenic strains of streptococci.—Stevens and Dochez, *J. Exper. Med.*, 40:493 (Oct.), 1924. M. S. M.

Wassermann Test in Rabbit Syphilis.—We conclude that nonsyphilitic normal rabbits always react negatively to the Wassermann reaction when performed as described. Rabbits successfully inoculated with syphilis always develop positive Wassermann reactions. In general, the Wassermann reaction becomes positive when clinical signs of syphilis appear, but it may be delayed a month or more. The Wassermann reaction parallels in a general way the course of the local reaction, becoming negative in untreated animals in the period of regression. In treated animals the Wassermann reaction usually becomes negative before the complete disappearance of clinical manifestations.—Heusinkveld and Carroll, *J. Lab. & Clin. Med.*, 9:834 (Sept.), 1924. Authors' Conclusions.

Studies of the Immunizing Properties of Bacterial Antigens Prepared After Various Methods.—Toxicity tests of various antigens were carried out on guinea pigs and were found to be no more toxic than the preservative. Comparison of the antigenic values of autolysates, bacterial washings and aggressins showed that agar washings stimulate the highest antibody response, and that the antigenic properties were greatly lowered by filtration. Antigens of bacterial washings with high antigenic properties freed from protein and giving negative biuret reaction produced sera with both agglutinins and complement-fixing bodies. Total nitrogen determinations of various pneumococcus antigens showed pneumococcus agar washings to have the lowest content. Antigenic values were found to depend in part upon the kind of peptone used in medium and upon the period of incubation of the culture.—Ferry and Fisher, *Brit. J. Exp. Path.*, 5:205 (Aug.), 1924. M. C.

A New Direct Nesslerization Micro Kjeldahl Method and a Modification of the Nessler Folin Reagent for Ammonia.—The authors recommend adding 30 per cent hydrogen peroxide to the micro Kjeldahl digestion after most of the water has been evaporated away. This hastened the oxidation of the organic matter and prevents the separation of the troublesome silicon dioxide so often met with. The peroxide is not recommended for macro Kjeldahl methods except in cases when a large amount of carbohydrate material or other substances which oxidizes slowly is being analyzed, when the use of peroxide greatly shortens the time of digestion necessary. In preparing the Nessler reagent Folin and Wu method of shaking an iodine solution with metallic mercury is used. The authors point out that by leaving an excess of iodine in the reagent as shown by the starch test that the reagent is improved.—F. C. Koch and T. L. McMukin, *J. Am. Chem. Soc.*, 46:2066 (Sept.), 1924. A. B. H.

Hemolytic Streptococci and Precipitin Reaction.—A method is described for the preparation from hemolytic streptococci of extracts containing a soluble precipitating substance. By the use of such extracts, it is shown that nearly all members of this family yield a common precipitable substance. So far, therefore, as concerns the precipitin reaction, the hemolytic streptococci form a practically homogeneous group.—Hitchcock, *J. Exper. Med.*, 40:445 (Oct.), 1924. M. S. M

Conference of State Laboratory Directors.—At the Detroit meetings (1924) of the American Public Health Association, the State Laboratory Directors met for the discussion of problems peculiar to their work. For some years such a practice has been suggested as part of the program of the annual meetings of the American Public Health Association. The conference this year was entirely informal, with no set program. Laboratory directors of twelve states had dinner together and then proceeded to discuss a variety of topics pertaining to the administration of a state laboratory. Mailing laws, postage, the distribution of specimen outfits, the examination of diphtheria cultures, branch laboratories and the production of biologics were some of the topics covered. The following states were represented: New Jersey, Indiana, Wisconsin, Virginia, North Carolina, New York, Minnesota, Florida, Illinois, Iowa, Kentucky and Massachusetts. The Michigan representative was prevented from attendance because of an address on the training of laboratorians. The conference was so successful that another meeting is being planned for St. Louis in 1925.—Dr. Thos. G. Hull, Director of Laboratories, Illinois Department of Public Health, *Personal Communication.*

NOTE: Each month we desire to publish in the LABORATORY NOTES two or three short articles (not exceeding 250 words) dealing with some phase of applied bacteriology, labor saving devices, modified methods, etc. Contributions should be in the hands of associate editor before the fifteenth of each month.—C. C. YOUNG.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Health **Record for September, 1924.**—The general death rate for the large cities of the United States was 10.7 per 1,000 in September, which is about the same as that recorded a year ago and slightly above the August figure of 10.5. More cases of diphtheria, poliomyelitis, scarlet fever, and typhoid fever were recorded than in August, but there was less malaria, measles, smallpox and whooping cough. Compared with September, 1923, there were more cases of poliomyelitis, scarlet fever, and smallpox, with less diphtheria, influenza, malaria, measles, typhoid fever and whooping cough.

Health conditions in September among the policyholders of the Metropolitan Life Insurance Company Industrial Department were not so favorable as for the preceding months of 1924. The death rate rose sharply to 8.3 per 1,000 from the August figure of 7.3, and the mortality was higher by 6.1 per cent than that for September, 1923. There were more deaths, as compared both with August, 1924, and with September of last year, from typhoid fever, whooping cough, diabetes, cerebral hemorrhage, organic heart disease, pneumonia, diarrheal complaints, Bright's disease, puerperal conditions, suicides and automobile accidents.—*Stat. Bull.*, Met. Life Ins. Co., 5:10-11 (Oct.), 1924.

Cancer **in Early Life.**—While cancer is usually associated with adult life, for certain parts of the body, cancer occurs almost as frequently in children and adolescents as in adults. In a study of 90,175 deaths from cancer among Metropolitan industrial policyholders in a period of twelve years, it was discovered that 1,910 were those of persons under twenty-five years. The type of growth known as sarcoma was responsible for most of these deaths. The organs or parts of the body most frequently attacked by malignant growths in early life were the brain, the bones, the kidneys and suprarenals and the lung and pleura. One-third of all brain cancers occurred among persons under twenty-five years; of bone cancers and those of the kidneys and suprarenals, 25 per cent were under twenty-five; and of the lung and pleura, 12 per cent. In the case of brain cancer, diagnosis based on clinical symptoms is uncertain and the percentage of error is high. It is more than possible that these errors are nearly counterbalancing and that the cancerous nature of brain lesions is undiscovered in fully as many cases as the cause of death is erroneously certified as due to cancer.—*Stat. Bull.*, Met. Life Ins. Co., 5:1-2 (Oct.), 1924.

Cancer vs. Tuberculosis Mortality.—A child ten years old is in greater danger of dying ultimately from cancer than from tuberculosis. The explanation lies in the fact that tuberculosis claims its victims heavily in early adult life, whereas cancer does not begin to do its deadly work until middle life. Using the experience of the United States Registration States in 1922, of 100 males at the age of ten, more than 8 will eventually die from cancer, while less than 7 will die of tuberculosis. The cancer probability for males is, therefore, 22 per cent in excess of that for tuberculosis. For females at the age of ten, the cancer probability is 87 per cent in excess of the chance of eventual death from tuberculosis. The excess of this probability measure for cancer over that for tuberculosis increases decidedly with advancing age. At the age of forty among males the chance of dying eventually from cancer is twice as high as for tuberculosis, and among females nearly four times as high. With advancing age the figures for males rapidly tend to approach those for females.—*Stat. Bull.*, Met. Life Ins. Co., 5:3-4 (Oct.), 1924.

Seasonal Incidence of Measles.—In the North Temperature Zone, measles incidence, and the measles death rate per 100,000 of population reach their maxima in the spring; the lowest points are in the late summer and early fall. It is not generally known, however, that the fatality rate of the disease follows precisely the opposite course. The maximum case-fatality rates occur in August and September and the minimum in March and April. These preliminary results suggest further inquiry into the clinical character-

istics of measles, as to whether it is more frequently complicated by fatal bronchopneumonia in the late summer than in the spring. That little progress has been made in the application of clinical studies in measles is shown by the lack of improvement in the case-fatality rates in New York City during the years 1910-1923. There has been no appreciable slackening of an indicated case-fatality rate from a figure of 2.9 deaths per 100 cases between 1910 and 1923.—*Stat. Bull.*, Met. Life Ins. Co., 5:7-8 (Oct.), 1924.

Venereal Statistics in Germany.—Statistics have been collected from the female patients attending the dermatological clinic of the Rudolf Virchow Hospitals, Berlin, during the period 1913-1923. In these eleven years the total number of female venereal cases was 6,860; the lowest annual total was 448 (1915), and the highest 800 (1923). There were 3 groups of cases: (1) primary syphilis, (2) soft ulcer, (3) condyloma. The primary syphilis curve varies greatly—for example, from 2.5 per cent in 1913 it rose to 3.2 per cent in 1914, fell to 1.5 per cent in 1915, rose to 4.3 per cent in 1919 and to 10 per cent in December, 1923. The curves of the other diseases also vary widely—for example, the number of cases of soft ulcer was 10 per cent of the total in 1914, 11 per cent in 1919, falling to 3 per cent in 1922 and rising to 4.8 per cent in December, 1923. The highest number of cases of condyloma occurred in December, 1922, when they formed 7 per cent of the total. The rapid rise of the syphilis curve is to be attributed to the pressure of adverse economic forces.—M. Gumpert, *Derma. Woch.*, July 19, 1924, p. 852, ab. *Brit. M. J.*, 2:61 (Nov. 1), 1924.

The Ex-Service Man and His Lungs.—A study of the ex-service man and his lungs, based on more than 1,200 cases, shows that tuberculosis—its diagnosis and treatment—is the greatest problem. This disease, however, is wrongly diagnosed chiefly because of too great dependence on roentgen-ray evidence. Of 450 men diagnosed as having tuberculosis, no tuberculosis could be found in 182; 170 were in an arrested condition with inactive disease, and only 98 required sanatorium treatment. It is obvious that the distinction between active cases requiring hospitalization and inactive cases requiring only supervision should be clearly drawn. Gas and influenza are only minor factors, as far as tuberculosis and its development are concerned. In only 19 out of 344 gassed men was the gas a factor in developing the disease, and in 17 influenza cases, tuberculosis followed. With the exception of a moderate amount of chronic bronchitis, which may often be properly attributed to the late effects of gas and influenza, it is clear that both gas and influenza had a far greater effect on the nervous system than on the respiratory system of the ex-service man.—J. B. Hawes, 2d, *Jour. A. M. A.*, 83:1490-1492 (Nov. 8), 1924.

Pneumonic Plague.—The severe outbreak of pneumonic plague in Los Angeles is the first outbreak of the disease to appear in the United States since a minor epidemic which occurred in Oakland, California, during August and September, 1919. The bubonic form first appeared in the United States in 1900 and sporadic cases have been reported at times. During 1923 plague was present in bubonic, septicemic or pneumonic form in all parts of Africa and Asia and South America. In the bubonic and septicemic types, spread mostly by fleas and rats, the plague bacillus occurs in glands, the blood and other organs and tissues of the body, while pneumonic plague spreads from man to man, and the organism appears in enormous numbers in the sputum. It seems doubtful that the plague bacillus alone gives rise to pneumonic plague epidemics. There probably is, in symbiosis, another organism of an influenza type. The greatest recent epidemics of pneumonic plague have been those in Manchuria in 1910 and 1911 in which there were 60,000 deaths and those in Shansi in 1917 and 1918 with 16,000 deaths. In January, 1924, an outbreak occurred near Bagdad, with 40 cases and 39 deaths, which seemed to resemble somewhat 83:1507-1508 (Nov. 8), 1924.

The Underlying Cause in the Pathogenesis of Rickets.—The most striking feature of rickets is the deficient calcium content of the skeleton. The metabolism of calcium—its absorption, utilization and excretion—is the kernel of the whole problem. There seem to be 3 possible reasons why a child who is getting ample calcium in its food should have bones so poor in this element: (1) the

calcium may not be absorbed in sufficient amounts; (2) there may be some abnormality in the condition of transportation of the mineral elements; (3) the growing centers may not have the power to retain it. The results of various metabolic experiments seem to show that there is a diminished absorption of the calcium available in ample amount in the diet. Thus only can we explain the diminished retention and at the same time diminished excretion by the urine. What leads to this diminished absorption still awaits solution. There is the idea that rickets are of intestinal origin, but several links in the evidence are lacking.—Leonard Findlay, *Jour. A. M. A.*, 83:1473–1479 (Nov. 8), 1924.

Rural and Urban Health as Shown by University Students.—The following conclusions were drawn from a study of the physical examinations of 3,478 male students entering the University of Michigan in the fall of 1922 and of 1923:

Students raised in cities of 50,000 population and over show the lowest number of defects; next in number of defects come those raised in cities of 5,000 to 50,000 with about the same number as those raised on farms, then those from towns of from 1,000 to 5,000 and finally those from villages of from 50 to 1,000 population. Multiple defects are also common in this last group.—W. P. Shepard and H. S. Diehl, *Jour. A. M. A.*, 1117–1123 (Oct. 11), 1924.

Vital Statistics, France, Second Quarter of 1924.—During the second quarter of 1924 the marriages in France numbered 98,683 as compared with 105,458 during the corresponding quarter of 1923; divorces numbered 5,752 as against 6,299. Births were 190,315 in 1924; 199,758 in 1923. Deaths of infants under one year numbered 16,004 in 1924; in 1923, 15,260; while the total number of deaths for 1924 was 162,621 as compared with 162,203 for the 2nd quarter of 1923. Marriages, births and excess of births over deaths (27,694 as against 37,555 in 1923) seem to be decreasing. *Jour. A. M. A.*, 83:1521 (Nov. 8), 1924.

The Excess of Births over Deaths in Germany, 1920–1923.—Since 1920 the birth and death rates of Germany have shown such a tendency to decrease that both rates for the years 1921 to 1923 were lower, with the exception of the abnormal birth rate for the period 1916 to 1919, than any previously recorded. There is the following difference, however: Since the temporary increase in the birth rate in 1920, it has fallen steadily, whereas the death rate has remained almost constantly at the minimum reached in 1921. This has resulted in a progressive decrease in the excess of births over deaths. Emigration has constantly increased since 1919. Since 1841 there have been only 3 such periods, when a falling excess of births over deaths due to a sudden decrease in the birth rate was accompanied by a concomitant increase in emigration. These were the periods marked by political or economic crises: 1846–1848, 1852–1855, and 1881–1885. This condition does not extend over the whole country to the same degree, however. The excess of births over deaths in the rural regions in 1923 must be regarded as high compared with former years and as compared with other European countries.—*Jour. A. M. A.*, 83:1181–1182 (Oct. 11), 1924.

Heart Disease.—Heart disease in a recognizable form interferes with the work, play or comfort of at least two million people in this country today. At least 15 of every 1,000 school children have already acquired some definite disorder of the heart. At least 30 of every 1,000 men and women of working age must reckon with heart disease as a disability. Ten per cent of the total bed capacity of our general hospitals is used every year for the care of patients with heart disease, and 25 per cent of all visits to our city dispensaries are made by heart patients. During the past 50 years deaths in New York from heart disease have increased 42 per cent in number, while deaths from tuberculosis have fallen 44 per cent. For the United States Registration Area in 1922, at the age of forty and over, heart disease claimed 19.2 per cent of all deaths, the highest proportion of any cause of death.

Of all heart disease cases which come under systematic hospital or out-patient care either in public or private practice, from 70 to 95 per cent are due to general infection. That total is made up of 50 to 60 per cent from rheumatic infections, 15 to 20 per cent syphilitic and 5 to 15 per cent from focal infections or following acute general infections.—Haven Emerson, *Survey*, 6:113–118 (Nov. 1), 1924.

Infant Mortality in South Africa and New Zealand.—The wide difference between the infant mortality rates in South Africa and New Zealand, 80 and 40 per cent, respectively, has prompted Dr. Boyd of Pretoria to investigate the question whether the comparison that has been made between the health and welfare work in two countries with unfavorable comments in the case of South Africa is at all justified. It is pointed out that a high birth rate is more apt to be accompanied by a high infant mortality rate than is a low birth rate. The average European birth rate in the South African Union for 1911–1918 was 29.8, while during this period in New Zealand, the corresponding figure was 25.5. The comparatively fewer poor white, the general climatic conditions, the rural environment of the majority of the population, and the relatively more restricted use of the native nurses, are also said to be important factors in the favorable position of New Zealand. Housing and sanitation are obviously very much concerned in the reduction, and it is Dr. Boyd's contention that without this a great deal of mothercraft teaching would be useless.—*Brit. M. J.*, 2:824 (Nov. 1), 1924.

Public Health in Italy.—In prewar years the average mortality rate was about 21 per 1,000. In 1920 the rate was 18.8; in 1921, 17.4; in 1922, 17.1; and in 1923, 16.5. If these figures are taken in conjunction with the continual increase in the birth rate in Italy and the decreasing child mortality, it will be seen that the progress achieved has been very notable. Malaria has decreased from 71 deaths per 100,000 in 1887 to 5.7 in 1914 and to about 5.0 in 1923. Typhus fever has progressively diminished, so that the mortality, which in 1887 was 67 per 100,000 has been reduced to 23. Pellagra has followed a similar course, declining from 12.0 per 100,000 in 1887 to 2.0 in 1923. Other diseases which are rapidly diminishing are amoebic dysentery, Mediterranean fever and smallpox.—A. Castiglioni, *Brit. M. J.*, 2:340–341 (Aug. 23), 1924.

Health Conditions in Palestine. — The Health Department of Palestine has been able to hold in check for the last 3 years the diseases—malaria, enteric fevers, typhus and smallpox—which in the past ravaged the country. Measles broke out more than once in epidemic form with pneumonic complications, causing heavy mortality among children; about 5,000 cases were reported with a death rate of 18 per cent. This disease is chiefly responsible for a large increase in the death rate, which for the first 11 months of 1923 was 25.0 per 1,000, as compared with 18.8 in 1922. There were restricted outbreaks of plague at Jaffa and Haifa. The efficiency of the antimalaria campaign has been maintained. The menace of the anopheline mosquito has been banished from the larger towns. Improved water supplies have lessened the incidence of enteric fever. Notification of births, deaths and infectious diseases is more regular. A serious increase of rabies has demanded an organized campaign. The number of lepers does not exceed 80.—*Lancet*, 2:532 (Sept. 6), 1924.

Infant Mortality in Ceylon, 1922.—The birth rate in Ceylon for 1922 was 39.4 as compared with 40.8 in 1921 and 37.9 for 1912–1921. The infant mortality rate was 188. The average rate for the ten years 1913–1922 was 190, ranging from 171 in 1915 to 223 in 1919. Of the total deaths under one year in 1922, convulsions claimed 29.6 per cent, debility 18.4 per cent, and prematurity, 4.9 per cent. Classified by race, the infant mortality ranged from 23 among Europeans to 219 among the Tamils and 248 among the Moors. The European rate was even less than that of England and Wales.—*Child Health*, 449 (Oct.), 1924.

Mortality in Hungary.—Before the World War, the general mortality in Hungary was 23–24 per 1,000. This rate increased in the first year of the war to over 25 per 1,000. In the following two years, it was 20.9 and 20.7, and in the last year of the war, it rose to 26. For the period 1911–1921 the lowest rate was 19.3 per 1,000 in 1921.

Before the war, the infant mortality was about 200 per 1,000, Russia being the only other country with a higher rate at that time. In 1924, the Hungarian infant mortality is 211 per 1,000, although the birth rate has decreased very much. The mortality rate from all forms of tuberculosis varied during 1911–1921 from about 2.42 to 3.52 per 1,000. The increase in the death rates has been caused by poverty and by the changed conditions existing since the war.—*Child Health*, 450 (Oct.), 1924.

Mortality Record of the First Nine Months of 1924.—Judged by the health record of the first nine months of 1924, it is highly probable that the death rate for the year 1924 will be considerably lower than for any prior year. This is indicated by the experience of more than 15,000,000 industrial policyholders of the Metropolitan Life Insurance Company. Among the white policyholders, the death rate for all causes was but 8.2 per 1,000, which may be compared with 8.8 for the corresponding period of 1923, 8.4 in 1922 and 8.2 in 1921. The 1924 figure is the more favorable in that infant lives are included for the first time. The colored experience is less favorable, the 1924 death rate being 15 as compared with 15 in 1923, 14 in 1922 and 13.5 in 1921.

Among the favorable developments of the nine months' period may be noted a further decline in the death rate for typhoid fever. Diphtheria is another disease in which the mortality record shows a considerable improvement over past years. Influenza has registered only about half the mortality this year, to date, that it did during the first nine months of 1923. The tuberculosis death record indicates that another decline to a new minimum will be recorded in 1924, the fall in rates being especially notable for the whites.

Other diseases, in which the downward tendency among the whites has been accompanied by a stationary or increasing figure among the colored population, are organic diseases of the heart, cancer, cerebral hemorrhage, chronic nephritis and puerperal conditions.

There is a considerable decline in mortality from lobar pneumonia this year, but this is accompanied by much higher death rates for bronchopneumonia, both among the white and colored experience. The record for chronic alcoholism shows that the peak in the rise which has been observed since 1920 has been reached. The record for violent deaths of all kinds is encouraging.—*Stat. Bull.*, Met. Life Ins. Co., 5:4–6 (Oct.), 1924.

The Cost of Heart Disease.—A survey of heart patients in 10 general hospitals, and in convalescent homes, dispensaries, etc., in New York indicates that the basic minimum cost of adequate care for persons with heart disease (it is commonly accepted that 2 per cent of the population will be found to suffer from heart disease) is at least 50 cents per year for each member of the community. This does not include the losses in industry from intermittent or part time work of such handicapped persons. It also has been found that 10 per cent of the beds of general hospitals are occupied day in and out by heart patients. The cost of hospital care for the acute stage of heart disease is at least $70 per patient on each admission; and for convalescent or chronic, not in general hospitals, each patient costs from $150 to $160, according to the length of stay permitted. Not less than 6, and probably 12 beds are needed for the convalescent care of heart patients per 100,000 of population; for that same 100,000 there is needed at least 300 hours a week of heart clinic service. In the 3 years studied, 1920–1922, patients with heart disease cost the city of New York $607,280.88 for hospital bed care, and $159,704 for convalescent home care. This cost includes only the comparatively small number of persons who reach institutions, and measures only the cost of medical care. The economy of preventing heart disorders or treating them in their incipient stages is shown by the following figures: supervising about 6,000 ambulatory heart patients in clinics cost about $23,500, while caring for about 4,500 patients in hospitals cost over $1,000,000.—W. H. Robey, *Survey*, 6:138–140, 165 (Nov. 1), 1924.

SANITARY ENGINEERING

ABEL WOLMAN, C.E.

Typhoid at Knoxville Attributed to Milk and Spring Water.—A total of 181 cases of typhoid fever reported from June 1 to August 23 are attributed to milk from one dairy, and from a number of contaminated springs in and about the city. It is believed that warning placards placed at the springs were unheeded. —*Eng. News-Rec.*, 93:590 (Oct. 9), 1924. A. W. B.

Mechanical Filtration Plant, Levis, Que.—A new intake from the river, a filtration plant, a new pumping station and a large elevated steel tank were constructed. The pumping system with the filter equipment has at present a capacity of 2,250,000 gallons a day, but provides for a future capacity of 3,000,000 gallons. —Edouard Hamel, *Canad. Eng.*, 47:391 (Oct. 7), 1924. A. W. B.

Disposal of Industrial Wastes in U. S.—Plain sedimentation and chemical precipitation are both used for treatment of wastes containing large quantities of suspended solids. Ordinary settling tanks are common, although there is a tendency toward increase in the use of tanks equipped with mechanical devices for the continuous removal of sludge. Intermittent filters and activated sludge process are also used.—Harrison P. Eddy, *Canad. Eng.*, 47:395 (Oct. 7), 1924. A. W. B.

Treatment of Sewage in Scandinavia.—Septic tanks and trickling filters are popular, although other types of treatment are employed. Fixed sprinklers have proved efficient and due to their being buried in the filtering material, with only the tops being exposed, they are efficiently protected against the severe frost. Methods employed in dealing with trade wastes, particularly from yeast factories, are described.—G. Peel Harvey, *Canad. Eng.*, 47:399 (Oct. 7), 1924. A. W. B.

Manufacture of Liquid Chlorine.—A description is given of the process of manufacturing liquid chlorine used in water purification, etc., at the plant of the Canadian Salt Co., Ltd.—*Canad. Eng.*, 47:404 (Oct. 7), 1924. A. W. B.

Garbage and Trash Collection Methods.—Methods employed by various cities in collection and disposal of garbage and trash are reviewed. A survey of 100 manager cities shows costs of collection varying from $1.35 to $5.80 per ton.—C. H. R. Fuller, *Canad. Eng.*, 47:425 (Oct. 14), 1924. A. W. B.

Collection and Disposal of Municipal Waste in Boston.—The collection of refuse is performed by city day-labor forces and five independent collectors operating under one year contracts. The refuse amounts to 482,000 tons, of which 79,000 tons are garbage, 371,000 tons ashes, and 32,000 tons rubbish. Approximately $1,750,000 is spent for the collection and disposal. One-fourth of the garbage is disposed of by hog-feeding, the remainder by reduction. Ashes and rubbish are used for filling purposes. These methods of disposal have been quite objectionable.—Edward F. Murphy, *Am. City*, 31:464 (Nov.), 1924. A. W. B.

A New, Large Municipal Water-Tower.—One of the largest elevated tanks built for municipal service has been finished in San Diego, California. The tank is 54 feet in diameter, 52 feet 3 inches high, and has a capacity of 1,202,000 gallons.—Allen H. Wright, *Am. City*, 31:485 (Nov.), 1924. A. W. B.

Separation and Salvage of Refuse.—Treatment of refuse in some cities in England.—At Marylebone a separation plant has been in operation since 1920. Refuse is fed into a 30 foot rotary screen, the first 20 feet of which is perforated with one-half inch perforations, the other 10 feet with 2 inch perforations. The fine dust is used by brickmakers for mixing with clay, and the larger sized material is used for burning bricks.—James Gair, *Canad. Eng.*, 47:444 (Oct. 21), 1924. A. W. B.

Benefits of Water Main Cleaning.—Capacity of mains increased and very satisfactory results were obtained at New Albany, Ind.—J. O. Endris, *Canad. Eng.*, 47:455 (Oct. 28), 1924. A. W. B.

INDUSTRIAL HYGIENE

DRS. E. R. HAYHURST AND N. C. DYSART

Occupational Diseases Reported in the United States.—The occupational diseases and disabilities reported to the U. S. Public Health Service from certain states during the first quarter of the year 1924 were as follows:

			Total
Connecticut	Benzol poisoning	1	
	Dermatitis and eczema	6	
	Lead poisoning	4	
	Mercury poisoning	1	12
Illinois	Lead poisoning	48	48
Massachusetts	Acid fumes poisoning	8	
	Alum poisoning	1	
	Ammonia and formaldehyde poisoning	1	
	Blood poisoning	2	
	Brass poisoning	2	
	Carbon monoxide poisoning	1	
	Chrome poisoning	1	
	Cyanide poisoning	1	
	Dermatitis	4	
	Hydrogen sulphide gas	1	
	Illuminating gas asphyxiation	1	
	Lead (colic, paralysis, poisoning)	22	
	Natural gas poisoning	1	
	Phenol formaldehyde fumes	2	
	Nickel solution	1	49
Missouri	Lead poisoning	1	1
New Jersey	Lead poisoning	4	
	Mercury poisoning	4	8
New Mexico	Lead poisoning	1	1
Ohio	Anilin poisoning	1	
	Carbon monoxide poisoning	1	
	Dermatitis	156	
	Lead poisoning	24	182
Pennsylvania	Lead poisoning	8	8

The above is taken from *Public Health Reports*, Vol. 39, No. 31 (Aug. 1), 1924, p. 1886. A letter from Dr. B. J Lloyd, Assistant Surgeon General, states that "very few reports of occupational diseases are received by the Public Health Service from state health departments, and no reports are received by us from state departments of labor." His letter also contains a memorandum giving a summary of laws and regulations of the following states upon this subject: Alabama, Colorado, Connecticut, Kansas, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Ohio, Pennsylvania and Rhode Island. Dr. Lloyd states that this list is probably not exhaustive. (An inquiry by the abstractor has discovered that occupational diseases are reportable to state health departments in twenty-one states and to state labor departments in 9 states. Also that in 5 instances they are reportable from one department to another, by which the total states supposed to report occupational diseases to one or the other of their labor or health departments is 26. In most of these, however, the inquiry showed the reporting act or regulation is not enforced.) E. R. H.

Rapid Reference Manual.—This little 4 x 6, linen-bound pamphlet of 45 pages composes an invaluable reference work for physicians interested in the field of industrial diseases. It pertains especially to New York State. The reporting law is given for New York State with extracts from the workmen's compensation law and items concerning fees for medical services.—Division of Industrial Hygiene, State of New York.

Mining Health Hazards.—Recovery from carbon monoxide poisoning may be hastened by the administration of oxygen with 5 per cent of carbon dioxide. A less bulky and simpler method is to use air and carbon dioxide. Dr. Haldane has devised an apparatus in which one small cylinder of liquid carbon dioxide may be used with air. In regard to *heat* in mines, the report states that a miner will stop work if his temperature rises very slightly above normal, as he has found by experience that he must not allow his temperature to rise if he is to earn his living. "The whole problem of keeping the temperature and moisture in the air at such a standard that full work is possible seems to me an economic one rather than one of health and safety." Dr. Haldane referred to the work on the "Control of Atmospheric Conditions in Hot and Deep Mines." Professor Moss has shown that a miner may lose 6½ pounds of sweat in an hour if hard pressed. This leads to the loss of chlorides in the blood and is accompanied by excessive fatigue and severe cramps. Men working in hot air drink water in excess—they sweat profusely and pass little urine. If given water containing 0.25 per cent of salt, all the symptoms are prevented or relieved when present." Shale dust used for stone dusting (to prevent explosions), although it contains 35 per cent of free silica, seems to be harmless. "There

is no evidence that coal miners as a class suffer from the inhalation of dust. Pure quartz or true ganister is always dangerous but with an admixture of 'country rock' in the first case or fire clay in the second, as Collis has shown, the dust is no longer dangerous. It is probable that the explanation of this is that the crystalline dusts by reason of their inertness, impenetrability, and insolubility do not stimulate the alveolar cells, but the addition of a noncrystalline (colloidal) body provides the necessary stimulus and both dusts are removed at the same time." Skin infections are common and call for adequate first-aid arrangements. Ankylostomiasis may be prevented by simple sanitary measures which prevent pollution of the ground. Dr. Irvine of South Africa thought that miners were more subject to fibrosis of the lung than Dr. Haldane's paper leads one to suppose, but did not think that this fibrosis proceeded to tuberculosis.—Abstracted by the *Jour. of Ind. Hygiene* (Vol. 6, No. 6, Oct., 1924, pp. 68–71) from the Empire Mining and Metallurgical Congress held at London June 3–6, 1924.

Cadmium Poisoning.—A fatality from inhaling fumes of cadmium is reported, while other men affected suffered from symptoms resembling brassfounders' ague (due to zinc fumes). Cadmium and zinc are closely allied metals, but cadmium is the more toxic.—Abstracted by the *Jour. of Ind. Hygiene* (Vol. 6, No. 6, Oct., 1924, p. 72) from Report of Senior Medical Inspector (Great Britain) for 1923.

Dangers of White Lead as Used in the Painting Industry.—This volume of lxxx + 778 pages reports the findings of a special inquiry conducted in New South Wales by the Board of Trade following a reference prepared by the International Labor Office on the subject. The report contains the minutes of the public inquiry and parties thereto, questionnaires issued, answers to the Geneva questionnaire, chemical and physiological data submitted by various experts, the public vital statistics and their interpretation, the evidence from administrative and trade experience, and general conclusions. The bulk of the report consists of the verbatim evidence by questions and answers submitted at the hearings. The principal scientific data concerning health aspects were submitted by H. G. Chapman, Professor of Physiology, Sydney University, and Dr. S. A. Smyth, medical practitioner.

The Broken Hill report shows that the dust contains less than 20 per cent of free silica, with a high content of galena and blende. Of 3,967 mine workers studied, 193 showed signs of pneumoconiosis, and 124 (including 59 of the 193) had pulmonary tuberculosis. In 7 out of 8 postmortems lead was found to be present in the lungs. The eighth case was that of a miner who had not worked as such for twelve years. All but one of the postmortems showed silicosis, but the leadless lung was not that one. Significantly enough, the dust inhaled by painters is also a combination of mineral and metallic, of siliceous and lead dust, it being produced by the work of rubbing down paints with abrasive substances. While the low percentage of silica in the Broken Hill dust should not, on Dr. Haldane's theory, be productive of silicosis, it is implied that lead changes the status from that of a harmless to a seriously harmful dust, causing silicosis. The report lays great stress upon the prevalence of chronic Bright's disease and arterio-sclerosis as sequelæ of lead poisoning. It notes also that turpentine, zinc oxide, and other factors cannot be excluded from the list of causative agents. Representatives of insurance companies stated that they did not consider the painters disability or death rate as more than normal, by the inclusion of lead poisoning in the schedule for compensation. The whole experience of an important company showed that the general risks in the case of painters are rather less than the general risks of all other people employed in the building trade.

The Board was unable to settle whether there are efficient and commercially available substitutes for white lead as a paint base. It finds, however, that lead, as used in the painting industry, is a substantial cause of injury and death to painters and other workmen engaging in the painting industry. In fact, lead is more effective as a cause of death in this industry than in any other occupation, but its total deaths, as recorded, does not by any means indicate its destructive power (reference being to sequelæ). The conclusion also is that the health conditions of the painting industry in New South Wales are as prejudicial as they have been found to be in England, and present real evils which

are preventable, and call for determined action in the public interest. Immediate prohibition or restriction of the use of white lead, the board finds, is not the appropriate remedy for the evils disclosed. The remedy lies in greater care on the part of employes themselves; care on the part of employers who should see that the breathing atmosphere contains less than 5 milligrams of lead per 10 cubic meters of air. Furthermore, the English Factory and Workshop Act and regulations for precautions are advised. Restrictions of the use of white lead in paints cannot be recommended. There is no means of measuring the degree of restrictions necessary. Regulations would appear to be sufficient provided there is the necessary will to produce the desired effects.—*Report of the New South Wales Board of Trade on White Lead as Used in the Painting Industry: Its Dangers and Their Prevention*, Sydney. Government Printer, 1921.

Alleged Poisoning by Ethyl Gasoline.—This press report was made in connection with the unusual circumstances attending the death of certain individuals employed in the making of tetraethyl lead in the Bayway, N. J., Laboratories of the Standard Oil Company. The Department of the Interior, through the Bureau of Mines, calls attention to the differences between tetraethyl lead and ethyl gasoline and states that they should not be confused in the minds of the public as the result of press accounts. Statements to the effect that the product causing the poisoning of these persons was ethyl gasoline, which is the product sold to the automobile owner, are erroneous. The persons at the Bayway Laboratories were poisoned during the process of the manufacture of concentrated tetraethyl lead. This product is not sold to the automobile driver except when tremendously diluted with gasoline. Tetraethyl lead is not in itself an engine fuel and is only used in greatly diluted form, commonly less than one part to 1,000 of gasoline. The substance is one of the "antiknock" compounds which makes it possible to use a lower grade of gasoline and to use engines of a more economical type, thus conserving the use of motor fuel.

The Bureau of Mines has carried on extensive experiments on the health aspects of these products for many months.—Dept. of Interior, Oct. 31, 1924 (P. N. 8381).

Health and Accident Prevention.—Dealing with the physiologic aspects of accident prevention, Dr. H. M. Vernon, investigator for the Industrial Fatigue Research Board, discussed the prevention of accidents by insuring that workers were in the best of health and were working under the best possible factory conditions. The worker suffering from a bad cold or acute indigestion was not likely to concentrate his attention on his work as a healthy person would. The home office committee found that in all industries in which investigations were made, accidents were more numerous in winter, when there was a good deal of artificial light, than in summer, when there was little or none. Undoubtedly, considerable fatigue increased the frequency of accidents.

Dr. Dearden, health officer of Manchester, said that it was beginning to be realized by those interested in industry that medical science was capable of doing a great deal for industry. Applied to British industry, it should bring about an annual saving in labor turnover of more than $300,000,000 in lost time, and in industrial convalescence of many millions more. To assess the total saving at $700,000,000 a year was well within the range of possibilities.—London Letter, *Jour. A. M. A.*, 82; 17, 1347 (Oct. 25), 1924.

Framingham Demonstration.—Studies of the environment of industrial workers, made under the Framingham Demonstration at Framingham, Mass., covered such elements as dust and ventilation, safety, fire hazard, first-aid, illumination, and general sanitation, such as toilet and drinking water facilities, washing facilities, floors and sweeping, etc. Medical, clinical, dental and nursing aid and educational equipment and personnel were also investigated. The summary and recommendations as to the study of dust and ventilation are quoted in part as follows: (1) In studying dust conditions it is necessary to take into account not only visible dustiness, but the weight, count, size, and character of the properly collected dust particles. (2) The dust hazards in Framingham are apparently greatest in the woodworking industries, next in the foundry work, and last of all in the woolen industry, judged almost altogether from the point of view of the probable relationship of abrasiveness to pulmonary tissue irritation. —*Framingham Monograph*, No. 10, D. B. Armstrong, Framingham, Mass., July, 1924.

Anthrax Study.—In making a clinical and epidemiological study of 61 cases of anthrax occurring in New York City during the five years 1919–1923, Dr. William Jacobson of the New York City Department of Health found the disease was twice as prevalent in the winter months as in the summer season (40 cases against 21). One-third of the cases occurred among brushmakers, warehouse men, truckmen and longshoremen. Shaving brushes were responsible for more than one-half (32) of the cases. Forty-two persons were infected from animal hair, or articles made from it, and 16 from animal hides and skins, or from articles made from such hides or skins. Twenty-four persons infected themselves while shaving at home; three were infected by barbers; four were infected while making shaving brushes and one while selling shaving brushes. Eight were infected by brushes other than shaving brushes. One person was infected from a torn hair cushion in the office in which she was employed.

In the treatment, the administration of anti-anthrax vaccine along with the aid of incision, excision, or cauterization gave the best results. The average dose was 100 c.c. a day. The fatality rate for the 61 cases was 31 per cent. The incidence of cases began to decline after the adoption of stringent measures which consisted in: (1) The enactment of regulations regarding sterilization of all animal hair to be used in brushes or hair cloth, and requiring manufactured hair products to be identified by trade-marks or manufacturer's name; (2) in tracing the source of infection and seizing and destroying or disinfecting infected material; and (3) public health education, by which means the worker, the employer, and the public generally were informed concerning anthrax.—*Pub. Health Reports*, 39; 40, 2523 (Oct. 3), 1924.

Sickness Among Wage Earners.—Sickness statistics furnished by a group of mutual benefit organizations and company relief departments for the years 1920–1923 have been analyzed by the Public Health Service. Inasmuch as sick benefits were paid only when disability covered a period of one week or longer, cases of shorter duration are not included in these statistics. Influenza and grippe were the outstanding causes of disability even when there was no epidemic. In 1923 the principal causes of disability per 1,000 wage earners were as follows: Influenza and grippe, 23.3; all other respiratory diseases, 16.3; nonindustrial accidents, 10.2; rheumatism, 8.7; diseases of the pharynx, 6.5; diseases of the stomach and diarrhea, 5.6; the "degenerative" diseases, 4.6; diseases of the skin, 3.4; appendicitis, 3.2; epidemic and endemic diseases, 2.4. For the four years appendicitis incidence was greater than the combined sickness rate of typhoid fever, smallpox, malaria, measles, and all the other epidemic and endemic diseases (except influenza and grippe). Records indicated that if the respiratory diseases could be eliminated there would be relatively little seasonal variations in the incidence of the illness which disables for eight days or longer. "Sickness occurred oftener among the female employees than among the males, though the rates included only diseases common to both sexes, and the age distribution of the women engaged in industry is younger, probably, than that of the men. There were striking differences in the sickness rates by establishments."—*Pub. Health Reports*, 39, 44; 2721 (Oct. 31), 1924.

Safety Code for Power, Foot and Hand Presses.—The American Engineering Standards Committee has formulated and approved as a standard a safety code for power presses, and foot and hand presses. The code consists of two parts, the *first* part treating of standard requirements which may be properly enforced by a state industrial commission or labor department. Part *two* is a discussion of press hazards, and protective methods and devices. The entire code may be adopted by any manufacturing concern as a standard to be followed by superintendents, foremen, designers, mechanics, and operators. The booklet contains many illustrated descriptions and discussions of press hazards and the methods that have been used to remove or protect against them.—National Safety Council, 168 N. Michigan Ave., Chicago, 1922.

Safety Code for Laundry Machinery and Operations.—This 12-page bulletin devotes most of its space to the question of the prevention of accidents in the laundry. The only item touching on health is contained in Rule 214 which states that "where artificial ventilation is necessary to the maintenance of comfortable working conditions an adequate ventilating system shall be installed."—*U. S. Labor Bull.* 375, Oct., 1924.

Workers' Health Bureau Convention.—Activities of the Workers' Health Bureau for the year 1923 were reported at its second annual convention in New York City, May 17–18. Evidence presented by the Bureau insured the 40 hour week for the painters of New York and Connecticut. Through the Bureau's efforts the State Industrial Commission appointed a committee to investigate the extent of benzol poisoning and silicosis in New York. Information was furnished the hatters of Danbury, Connecticut, which enabled them for the first time to assist members of their Locals in handling compensation claims. A campaign was "conducted in Wisconsin and Massachusetts to combat the spray-painting evil." The Bureau has been quite active in the revision and introduction of new state regulations relating to the health and safety of painters. It is now at work upon a study of hazards in the glazier's and glass beveller's trades. Professor Yandell Henderson discussed the dangers of carbon monoxide poisoning. Dr. Greenburg of Yale University spoke of the health problems of the modern factory system, including illumination, ventilation, dust, noise and fatigue. The prevention of lead poisoning was outlined by Dr. Rezkioff of Harvard University. He emphasized the importance of employing the wet sanding process in the painting industry. Dr. E. R. Hayhurst of Ohio State University described skin irritations caused by harmful working materials and the effect on the body of such volatile thinners as benzol, turpentine and petroleum products, and of mercury in the hatter's trade. The increase in the use of harmful materials in the painting trade proves the great necessity for chemical analysis of all materials to prove whether they are injurious. The need of this analysis was pointed out by Dr. Bradley Hirschberg.—*Painter & Decorator*, 38, No. 8, 343 (Aug.), 1924.

Sight Defects in Industry.—H. F. Thalner, Safety Director, Buick Motor Car Company, Flint, Mich., reports the results of vision tests of workers employed in the Buick plant. The tests were conducted in coöperation with the Eye Sight Conservation Council of America. During the first month eye tests were made of 1,566 applicants for employment which revealed 56.8 per cent with defective vision. Of 892 applicants during the second month the defective percentage was 56.9; of 188 during the third month the percentage was 55.3, and of 767 during the fourth month it was 54. The average for the four months disclosed that 56.1 per cent of the 3,513 applicants had poor eyesight. These results may be considered as representive, not only of the automobile industry, but of any group of workers, when similar tests are made. The Buick Company is particularly attentive in caring for the eyesight of its employees. The lighting system and inside painting have been carefully worked out and the campaign is being carried on looking to the prevention of eye accidents. The Eye Sight Conservation Council recently completed a national survey of conditions affecting the eyesight of industrial workers and school children, and the findings are embodied in a report now being prepared for publication.—*Hosp. Management*, 18, No. 2, 64 (Aug.), 1924.

Temperature of Locomotive Cabs in Railroad Tunnels.—In an effort to improve conditions of discomfort to enginemen and firemen on freight locomotives, caused by heat, gas and smoke in railroad tunnels, investigations were conducted in tunnels of the C. & O. Railroad in Virginia and West Virginia. It has been suspected that the high temperature of exhaust gases entering the cab was the cause of the excessive heat felt, but this cannot be true in the tunnels investigated. Rather the increased humidity of the cab air, due to the entrance of exhaust steam with the stack gases, seems to cause the discomfort. Temperatures were found to increase with the height above the floor, the highest temperature of 158° F. being observed just under the middle of the roof of the cab. Blowers were tried, these taking air from a point two feet above the center of the track and introducing it through pipes, in streams directed upon the positions of the engine crews. This, however, was found unsatisfactory for several reasons. Discomfort through heat may be lessened by increasing the lagging on the parts of the boiler exposed in the cab, and by means of a smoke deflector, as used by the Union Pacific Railroad, which causes exhaust gases to stream backward over and away from the cab.—S. H. Katz and E. G. Mider, *Reports of Investig.*, U. S. Bur. of Mines, Serial No. 2624, July, 1924.

Address on Industrial Hygiene at the Bordeaux Congress.—Sir Thomas Oliver, in his presidential address before the Industrial Hygiene Section at the 1924 Bordeaux Congress, touched particularly on France's part in the development of health conditions in industry, on the employment of women, and of disabled workmen. The first organized attempts to put labor on a healthier basis and to raise the social level of the working classes were made in England early in the last century. Similar efforts soon followed in France. Since that period, English and French legislation relating to industrial hygiene has run on parallel lines. France deserves great credit for transforming the dangerous manufacture of lucifer matches into a comparatively harmless occupation, by the use of sequi-sulphide of phosphorus. In the United States 8,500,000 women are earning their living in commerce and industry. One-fifth of American women are wage earners and one-tenth of the married women are so occupied. In many cases women must go home from the workplace and spend the latter part of the day with household duties. Woman is doing her share in producing those material things which add to the prosperity of the country, whereas upon her work and influence in the home are based the happiness and character of the people. Work of a graduated character should be provided for working men and women who are slowly recovering their health after illness. At the Ford Motor Works in Detroit many aged workmen, seventy-five years of age and over, were employed; "also many men with only one leg or one arm; there were 16 blind people gathering and piecing together small articles of stock; also 1,000 tuberculous workpeople employed doing salvage work in the open air. When a workman with a good record dies in Ford's service, work is offered to his widow or daughter."—*J. State Med.*, 32, No. 7, 334 (July), 1924.

The Moral Hazards of Child Labor.—Whatever threatens the normal, physical or mental development of a child is essentially a moral hazard. There can be no clear distinction between physical and mental well-being on the one hand and moral well-being on the other. The author emphasizes the relation between certain forms of children's work and juvenile delinquency. Living standards suffer in that child labor, having become a definite and established factor in industry, results in an adulteration and cheapening of wages. This gives rise to the assertion that the labor of children cannot be stopped without hardship to their families, whose income from other sources has become fixed on too low a level. The absence of children from school before they arrive at the normal age of high school graduation is a national calamity. The street trades frequently provide a short and easy road that leads children to moral collapse, or at least to permanent coarsening. "Early exposure to an environment in which intellectual, moral, and cultural excellence are unknown and undesired, where shiftlessness and dishonest methods of work prevail, where respect for personality is seldom found, and rough treatment is a common practice, and where uncleanness in thought and speech are continually in evidence—such an experience if it continues long is almost sure to exact a heavy toll of the young life thus imperilled." —F. E. Johnson, *Jour. Soc. Hyg.*, 10, No. 6, 329 (June), 1924.

Industrial Poisons Committee.—The Industrial Poisons Committee, Chemical Section, National Safety Council, has prepared an initial report, a "Summary of Present Practice in Industrial Poisoning Prevention." The report is tentative both as to its form and the matter contained, and was presented to the section at the Louisville Congress, Oct. 1, 1924. The committee proposed that the National Safety Council issue for general distribution, under supervision by the Chemical Section, a series of single leaflets or bulletins on specific industrial poisoning, and that the text of these bulletins be in such brief and nontechnical wording as would permit wide distribution and attract the attention of local physicians, plant executives, safety committees, plant foremen and individual workmen. "The object will be to provide not complete data for the elimination of poisoning in particular processes and the accurate diagnosis of disability cases, but merely a suggestive guide or warning for each important poisonous substance. Periodic revision of the bulletins would have to be made in order to keep step with changing practices in both manufacturing methods and medical knowledge."—*Committee Report.* S. E. Whiting, Liberty Mut. Ins. Co., Boston, Chairman.

HEALTH EDUCATION AND PUBLICITY

EVART G. ROUTZAHN

Popular Magazine Material for Special Uses.—Now and then an article on health subjects appearing in a popular monthly or weekly may contain material worth reprinting by permission as a leaflet or in a house-organ. Such is Freeing Mankind From Disease, "the fascinating story of modern science's successful effort to alleviate the suffering of man and beast."—W. W. Keen, M.D., *Collier's* (Nov. 8), 1924, pp. 15–16, 46.

Folks We Know.—Bernard C. Roloff, Illinois Social Hygiene League, is vice-chairman of the Committee on Publicity and Financing Methods of the Chicago Council of Social Agencies.

Miss Anna C. Behr, formerly publicity secretary of the National Organization for Public Health Nursing, is now with the Welfare Division of the Metropolitan Life Insurance Company.

Frank J. Osborne, so long with the American Society for the Control of Cancer, is now Health Officer, East Orange, N. J.

Dr. M. L. Townsend of Charlotte will direct the educational work of the North Carolina Board of Health, and will be assisted by Mr. R. B. Wilson who has been with the Board for a number of years. Until Dr. Townsend joined the State Board of Health in April he had been editing the *Southern Medicine and Surgery* in addition to his general practice.

Dr. J. J. Heagarty, Dominion Department of Health, presented a discussion of the motion picture, "Protective Social Measures," at the National Social Hygiene Conference in Cincinnati.

Having a Good Time Learning About Health.—A brief description of the Metropolitan Health Opera, the National Health Circus, the Little Health Theatre, and the Olympic Health Games, planned for girls and young women, will suggest possibilities for other groups.—"The Health Way in Play," Jane Bellows, Woman's Press, 600 Lexington Ave., New York City, 18:808–811 (Nov.), 1924. Twenty cents. See copy at local Y. W. C. A.

Getting News in the "Small Town" Papers.—The editor of *The Evening Bulletin*, of Miami, Arizona, says that the dailies and weeklies in the smaller cities and towns are anxious for local news, and tells the kind of news to send them and how to prepare and deliver it. There is good material here for local tuberculosis committees, county health nurses, health officers in smaller communities, and other professional and volunteer health workers. You may wish to republish at least parts of the article.—"What to Send to a Newspaper and How," T. W. B. Anderson, *Child-Welfare Magazine*, 7700 Lincoln Drive, Philadelphia, 19:189–191 (Dec.), 1924. Ten cents.

When You Go a-Visiting.—Visitors to national offices in New York, Washington and elsewhere sometimes think they have altogether too much trouble in meeting the people they wish to see. The problem is one of planning the day's work. Out-of-town correspondents want answers to their letters. Telegraphic and mail requests bring many unexpected demands upon the staffs of national organizations. The unexpected visitor's interview must often be hurried if, indeed, it is secured at all, because the person wanted may be out of town.

What Is the Answer?—If possible write in advance to arrange an appointment. At least, write that you are coming, mentioning the day or days you will be in the city. Then when you arrive telephone for the specific hour. *In many cases you will save time* for yourself, and in most cases, although you may never know it, you will receive better service.

Appointments Made for You.—Usually, if you wish to look up a number of people in one city, one of the group will gladly make advance appointments for you. Incidentally, it may be a mutual advantage for you to indicate in your letter any specific matters you wish to discuss. I have known of cases where with such advance notice information could have been gathered and the interview made more fruitful.

Dates Ahead.—With your help, this department hopes to suggest each month some of the dates ahead which need to be taken into account in getting out appeal letters, planning meetings or arranging other activities. We wish to list dates to which you can tie a health message, celebrations, anniversaries, a special week, and so on. Will you suggest to the departmental editor dates timely for getting out material on a particular health problem—a press story, a public statement from the health officer, a new leaflet, etc.—or for calling a conference of local state health agencies or to solicit the coöperation of the woman's club, the Rotarians, etc.?

Publicity Tickler.—Get each of these dates on a five by eight sheet; file by months, and you have them in shape for a long look ahead when planning next year's program, even though the actual day of the month will be changed in some cases. Date the annual meeting of the A.P.H.A. for next October, and make use of it as a time for emphasizing the extent and significance of the national health movement.

Art for Health Agencies.—If you wish to create a friendly, restful atmosphere for those who sit and wait their turn for service or instruction in a clinic or other center for health work, read "What Place Has Art in Modern Hospital Therapy?" This illustrated article is addressed to hospitals; but its application is much broader. The task of building good will will be lightened by making offices, waiting rooms and institutions attractive. Their educational effectiveness can be increased at the same time.—By Katherine Metcalf Roof, *The Trained Nurse and Hospital Review*, LXXII:329 (Oct.), 1924.

How Much Do Your Mail Campaigns Actually Cost?—There are nearly 57 ways of counting the costs, and you never know if the other fellow is counting the same way you do when you compare costs and returns on appeal letters. A subcommittee of the Committee on Publicity Methods in Social Work is working on what items should be counted, and Mr. Ralph G. Hurlin, director of Department of Statistics, Russell Sage Foundation, has developed for the committee a blank for reporting costs and returns on a comparable basis. Interested health agencies wishing to try out the blank are invited to correspond with Mrs. Irene Conrad, Charity Organization Society, 105 East 22nd Street, New York City, chairman of the committee.

Open Air Sleeping Aids.—How can one be comfortable when sleeping outdoors, or even with the windows wide open? Until this question is answered practically for differing conditions and varied incomes, not much progress can be made in getting large numbers to risk open-air sleeping. A budget of suggestions appears in an article with the title "Of Course He Felt Fine."—By Elizabeth Cole, *Journal of the Outdoor Life*, 21:649–652 (Nov.), 1924. Twenty-five cents.

"Health Extra" of The Detroit News.—A feature of the Newspaper Clinic at the Detroit convention was the "Health Extra," a full newspaper page made up of news stories, editorials, and feature material on health subjects which were the basis for the clinic discussion. Copies of the "Extra" will be supplied by Evart G. Routzahn, 130 East 22d Street, New York City.

Will Physicians Read the State Department Bulletin?—More than 1,200 New Jersey physicians, out of less than 3,000 addressed, expressed the opinion that the state bulletin, *Public Health News*, should be sent to all physicians in the state, "and of these, more than 300 testified to the value they received from the journal; from many came helpful, constructive criticisms. Only eleven physicians stated that they did not care to receive the *News*."

A Phase of Crowd Psychology.—"The acrobatic cheer leaders at football games may seem foolish, but have you ever realized that they are applying a principle in the psychology of success with amazing skill and effectiveness?" "Yells That Win Games" is an entertaining and suggestive illustrated article. Hugh Fullerton, *Liberty*, 1:5 (Oct. 1), 1924.

American Child Health Association.—Since submitting for publication in the December JOURNAL the announcement of the School Health Program Contest it has been necessary to change the final date for filing applications from January 10, 1925, to February 20, 1925.

Dental Motion Pictures.—A list of 17 non-technical films and 18 technical pictures has been prepared by the Department of Dental Health Education, American Dental Association, 5 North Wabash Ave., Chicago.

Economy Not the Reason for Poor Type.—A stimulating and helpful number of the series of articles on hospital publicity prepared by Ralph Welles Keeler is devoted to "Typography in Hospital Publicity." It will serve workers in all public health fields. If your superior officer does not understand that good typography plays an important part in successful publicity, try to get him to read this article. Then here is a suggestion for the publicity worker: "Do you laugh at the man who reads a page in the dictionary every day in order to amplify his vocabulary? Then do something that will give him a chance to laugh at you. Buy a good type book and study it daily. You will get usable knowledge which will make you willing to let him have his laugh, just as he is getting values from the dictionary of which you are entirely ignorant. Your daily study of the type book will familiarize you with type, its habits and ways of helping to express the words which clothe the ideas you are using as publicity material. You will be able to discuss your type ideas with the printer with an assurance that will discourage his 'but this other type face is just as good.' You will come to know what you want and no more have to say to the printer 'I want to get out a leaflet. How would you suggest setting it up?' The printing side of your task will become a real joy, because you know it."—*The Modern Hospital*, 23:218–222 (Sept.), 1924.

A Volunteer Clipping Service.—Most publicity workers have not time to go through all the publications issued in their city and county looking for material they have sent to editors. Much less is it possible to locate other health material which may appear in those papers. Can you assign one paper each to various employees in your office? Can you assign to one volunteer helper a church bulletin, to another a house organ, to others other periodicals in which your copy may appear, or which may contain some kind of health material which you should know about?

A Bird Health Fortune Teller.—Have you seen the itinerant fortune teller with a deep tray before him filled with little envelopes, each containing one of the conventional "fortunes"? And a paraquet, perched on a rod at one side, which picked out the envelope in exchange for a five cent piece? Why not try it out for a fair or exposition stunt? With health "fortunes" inside some gorgeously colored envelopes, carrying some striking illustration, it is possible they could be sold far a cent apiece. Where to get the trained paraquet I have no idea. Possibly they are easily trained for the performance. Or, some ingenious friend may devise an imitation bird to be worked with a lever.

LEGISLATION

JAMES A. TOBEY, LL.B.

Legislation on the West Coast.—Legislation and legal matters relating to health in the State of Washington are set forth in the *Messenger* of the Public Health League of that State for November 1, 1924. Attention is called to the fact that seven physicians qualified in the primaries in September, and the hope is expressed that they be elected to the state legislature. Two matters from the office of the Attorney General are reviewed; one alleging that sanipractors are conducting a diploma mill in the state, and outlining a complaint which has been filed against a local sanipractic university; the other an opinion that osteopaths cannot, under state law, act as health officers of cities of the third class. The *Messenger* also relates how it threw its influence in favor of the opponent of a candidate for state senator who had been against all constructive health legislation in the past. This senator was defeated for the nomination by the man favored by the League. The magazine comments editorially on the election of a Christian Scientist as governor of Maine, and says, "There is a wholesome object lesson in the experience of the Maine election. It proves, for instance, that experience and organization are essential to success in political movements. It supports the doctrine of the Public Health League of Washington that a definite objective and an organization that is on the job 365 days in the year are absolutely necessary to success. Also it shows that the cults are intensely active where there is no effective organization to safeguard the health interests of all the people."

Eugenical Sterilization in Indiana.—Indiana passed a law in 1907, which authorized certain institutions for criminals and "idiots" to appoint physicians to examine inmates and, if deemed expedient by a committee of experts, to perform an operation for the prevention of procreation. An outline of the history of this legislation is given in the *Monthly Bulletin* of the Indiana State Board of Health for October, 1924. During the two years after the passage of the act, 118 prisoners were sterilized. The law then became inoperative, due to the opposition of Governor Thomas R. Marshall and remained so for some years. In 1921 it was declared unconstitutional by the Supreme Court of the state in a case which had been appealed to it. The ground for this decision was that there was no provision for due process of law; that is, no opportunity for a hearing by a court before the performance of the sterilization procedure on the individual.

The *Bulletin* states that on account of a wide demand for a new law on this subject, a bill will be introduced in the next legislature. An endeavor will be made to report the progress of the bill in these columns. The essentials of an effective state eugenical sterilization law are given as follows:

1. The law must apply to all persons who, because of degenerate or defective hereditary qualities, are potential parents of socially inadequate offspring, regardless of whether in the population at large or in custodial institutions.

2. The law must provide a proper executive agency with a state "eugenecist," giving his entire time to the work, with the supervision of a Board or Council, and to be free from political or other influence, except as a consideration of public welfare.

3. The law must make ample provision for "due process of law" whenever demanded by the individual concerned or by anyone having a lawful interest.

4. The law must make provision for the study of mental, moral, physiological, social and economic effects of different types of sterilization.

5. The law must make due provision for safe, skillful and humane operation and treatment.

6. The motive of the law must be purely eugenic and in the interest of public welfare, with no punitive element in the law whatsoever.

7. Ample appropriation to make the work effective must be provided.

There is an interesting book on this subject, entitled "Eugenical Sterilization in the United States" by Dr. H. H. Laughlin, and published in December, 1922, by the Psychopathic Laboratory of the Municipal Court of Chicago.

Eye Sight and Automobile Accidents.—A survey by the Eye Sight Conservation Council of America shows that only four states, Delaware, Minnesota, Oregon, and Pennsylvania, have any statutory reference to the eye sight of operators of automobiles, and that the provisions of these state laws are merely vague statements that the eye sight of applicants must not be impaired or defective, according to the *Journal of the American Medical Association* for November 8, 1924. The vision of applicants for automobile licenses is tested in five other states, Maryland, New Hampshire, New Jersey, Ohio and Rhode Island. The conclusion reached is that proper attention is not given to the eye sight of practically the entire motor driving population of the United States.

The Eye Sight Conservation Council, it might be remarked, is said to be maintained by optical firms and others legitimately interested in promoting the use of glasses. The Council is, however, doing a useful service in pointing out such facts as the above. A scientific statement of the extent of impaired vision is given in the *Journal* for November in the excellent article by Mr. Carris of the National Committee for the Prevention of Blindness, one of the members of the National Health Council.

Is a Piggery a Public Nuisance?—A sensible court in Michigan has wisely held that disagreeable, unpleasant odors emanating from a piggery where garbage was cooked and fed does not constitute a public nuisance (Kalamazoo Township v. Lee, 199 N. W. 609). It was opined that the evidence was insufficient to show that such odors, while no doubt obnoxious, were detrimental to public health. The piggery might have been a private nuisance and probably was, but was not a public one, and where a board of health sues to restrain the operation of such a piggery, the only question involved is whether the business is actually detrimental to public health.

INDEX FOR 1924

An index of the more important items abstracted or discussed in this section during 1924 follows, and is given for the convenience of sanitarians who may have occasion to consult legal or legislative matters pertaining to administration.

Blindness, State Laws on ..... Aug., p. 734
Court Decisions:
Beer as medicine ..... Aug., p. 733
Chiropractors ..... June, p. 559
Sept., p. 813
"Contagious" and "Communicable". Oct., p. 915
Dist icts ..... July, p. 645
General Review of ..... Sept., p. 812
Liability of health officer ..... June, p. 559
Municipal Health ..... May, p. 463
Night work of women ..... May, p. 463
Pasteurization ..... Aug., p. 733
Plumbing ..... Sept., p. 813
Procedure ..... May, p. 463
Sanipractor ..... June, p. 560
Vaccination ..... Jan., p. 91
Oct., p. 914
Federal Legislation ..... Feb., p. 177
Mar., p. 278
Apr., p. 374
May, p. 462
June, p. 558
July, p. 643
(review) Aug., p. 731
Federal reorganization ..... May, p. 462
Homicide and law ..... Nov., p. 1008
Legislation, Fads in health ..... Nov., p. 1007
Liability, personal of health officers .... Dec., p. 1092
Maternity and infancy, Federal act .... Nov., p. 1007
Milk, legal aspects of control of ..... Oct., p. 915
Narcotics, extent of ..... Aug., p. 732
Nursing, model legislation ..... Nov., p. 1007
Plumbing and health ..... Nov., p. 1007
President's message ..... Feb., p. 177
President, attitude on Federal subsidies ..... Apr., p. 374
Public Health law course ..... Feb., p. 178
July, p. 645
Sanitary engineers' commissions ..... June, p. 558
Sixty-eighth Congress—See Federal legislation
State legislation review ..... Aug., p. 733
Stream pollution ..... Dec., p. 1093
Summer camps ..... Dec., p. 1093
Vaccination, legal aspects ..... Jan., p. 91
Oct., p. 914
Venereal disease ordinance ..... Oct., p. 916
Veteran's Bureau ..... Apr., p. 375
July, p. 644
Sept., p. 813

CONVENTIONS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Avenue, New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

January 5–7, National Drainage Congress, Chicago, Ill.

January 13, West Virginia Public Health Council, Charleston, W. Va.

January 21–23, American Society of Civil Engineers, New York, N. Y.

January 26–31, Texas Water Works Association School for Filter Plant Operators, Austin, Texas.

January 29, Massachusetts Association of Boards of Health, Boston, Mass.

February 2, American Heart Association, New York, N. Y.

February 22–27, Department of Superintendence of the National Education Association of the United States, Cincinnati, Ohio.

February 26–28, National Association of Deans of Women, Cincinnati, O.

March 5–7, Association of American Medical Colleges, Boston, Mass.

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